

Unboxing Manhattan

An Architecture of Things

BY JACOB ANDREW

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Master Of Architecture

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UNBOXING MANHATTAN: AN ARCHITECTURE OF THINGS

Jacob Andrew

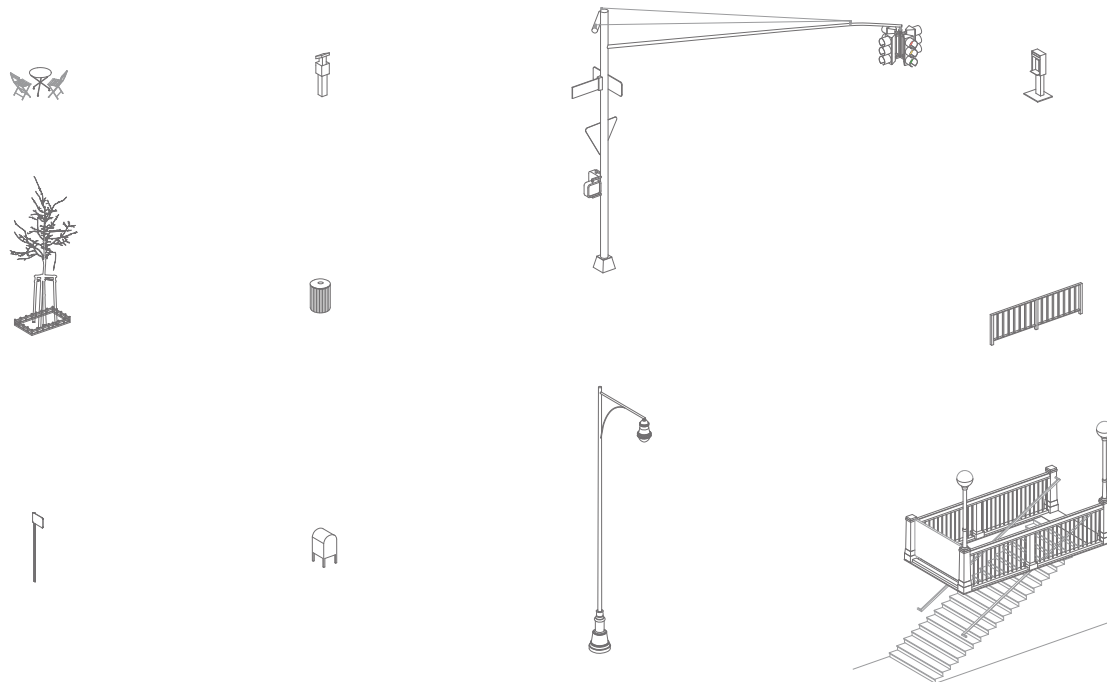
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ABSTRACT

This thesis project elaborates upon the seemingly invisible urban space of online shopping. Through its necessity in delivering products to customers, online shopping has resulted in an intense physical occupation of the city streets by delivery trucks. These semi-permanent installations of delivery provide no benefit to the public realm and yet have become a very ubiquitous element of urban space.

Architecture has the opportunity to provide the city with an alternative to the unending rows of delivery trucks by introducing a new form of infrastructural public space; the delivery station. As a point-based infrastructure, the delivery stations would be distributed throughout the city in order to accommodate neighborhoods and populations. While simultaneously offering a more convenient solution to the issues of delivery, these stations would become a part of the overall architectural language of the city. This thesis focuses on the particular architectural compositions and affects of the delivery stations by developing a catalogue of parts that can be deployed across the city and a system of tectonics that can be delivered to the site.

Through the concepts of scalelessness and territoriality, this thesis proposes the development of an architectural type capable of producing a new public space around the delivery logistics of online shopping.



Streetscape Design
The identity of a city

Acknowledgements

Through their encouragement and selfless acts of kindness and guidance, a certain few must be acknowledged in helping to make this thesis possible. First, I must thank Rice University and particularly Dean Sarah Whiting and the Rice University School of Architecture; without which, none of this would have been possible.

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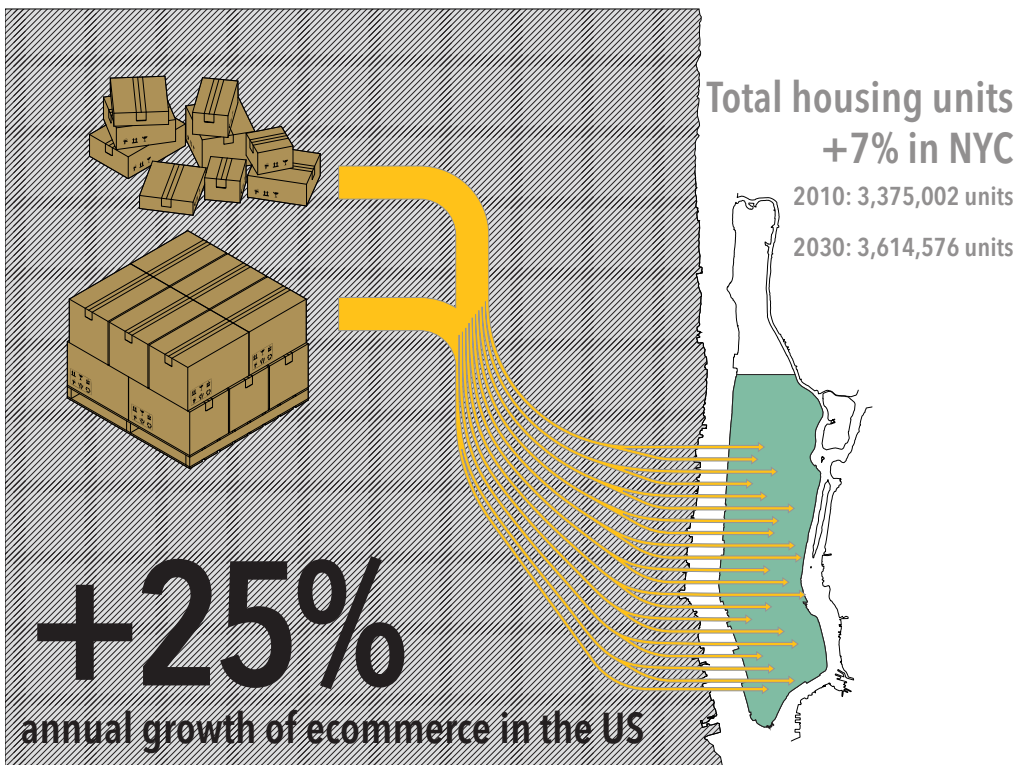
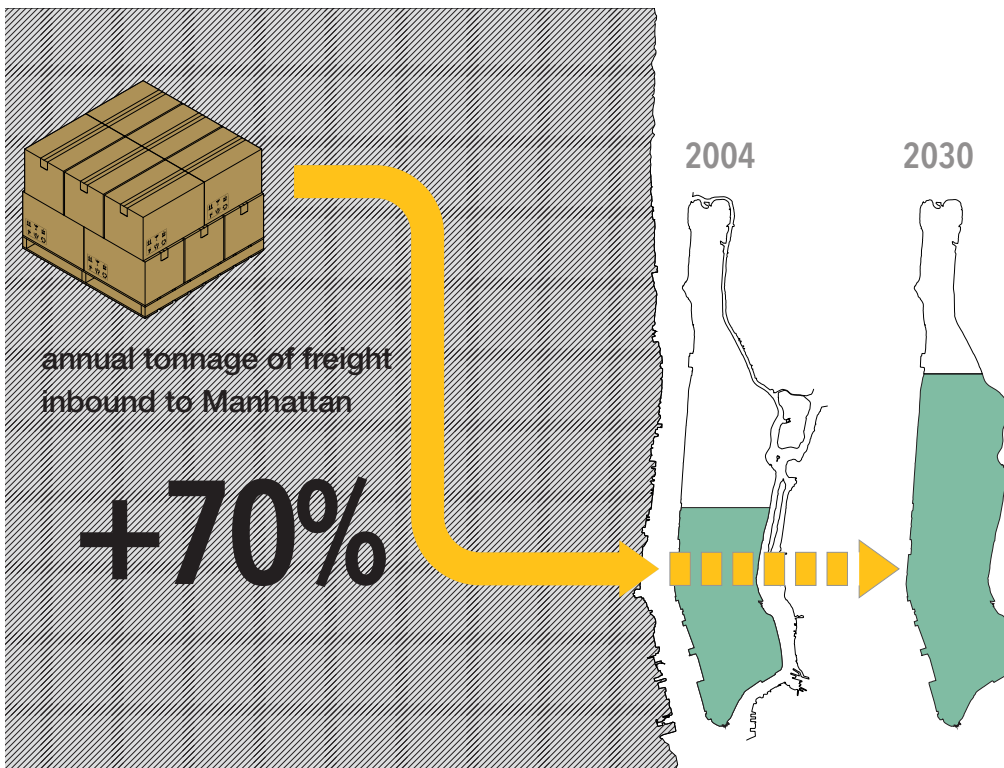
Introduction

As online shopping continues to grow in popularity, the delivery of packages continues to grow as a result. However, what we have seen, particularly in dense urban environments, is a system of delivery that is incapable of meeting the demands and particularities of its growing clientele. In the borough of Manhattan, the annual tonnage of inbound goods is projected to grow by over 70% in the next 15 years. With a trending growth increase of 25% per year in online shopping, more and more of those inbound goods will be single packages delivered to the millions of unique addresses of shoppers throughout the city.

The obvious logistical issues raised by these accelerating trends have been left to the private sector to solve: an increase in delivery trucks and their crews; resulting in an ever-present swarm of mid-sized delivery vehicles throughout the city.



Delivery Vehicles On the Streets of Manhattan
The constant occupation of the streetscape

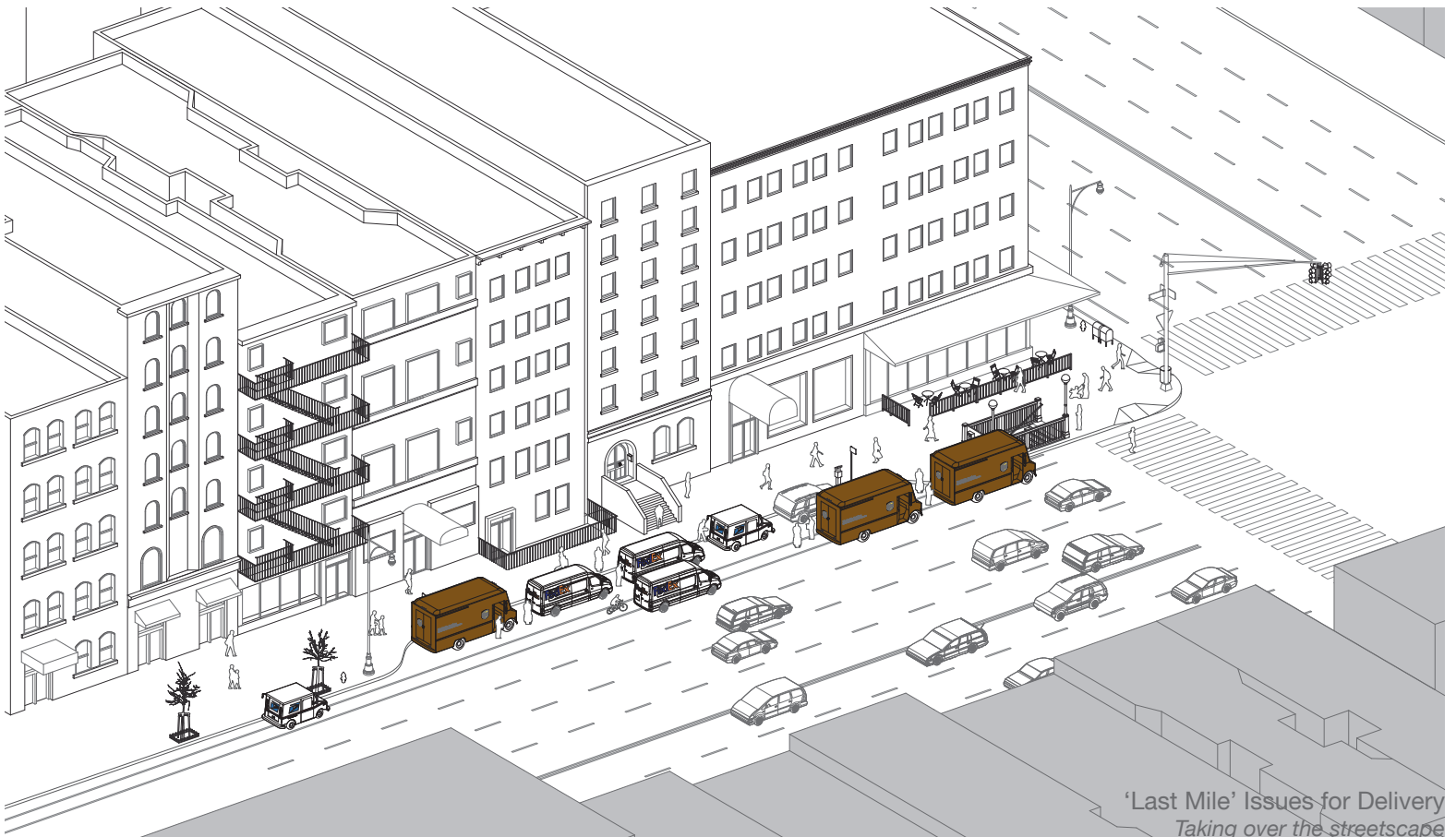


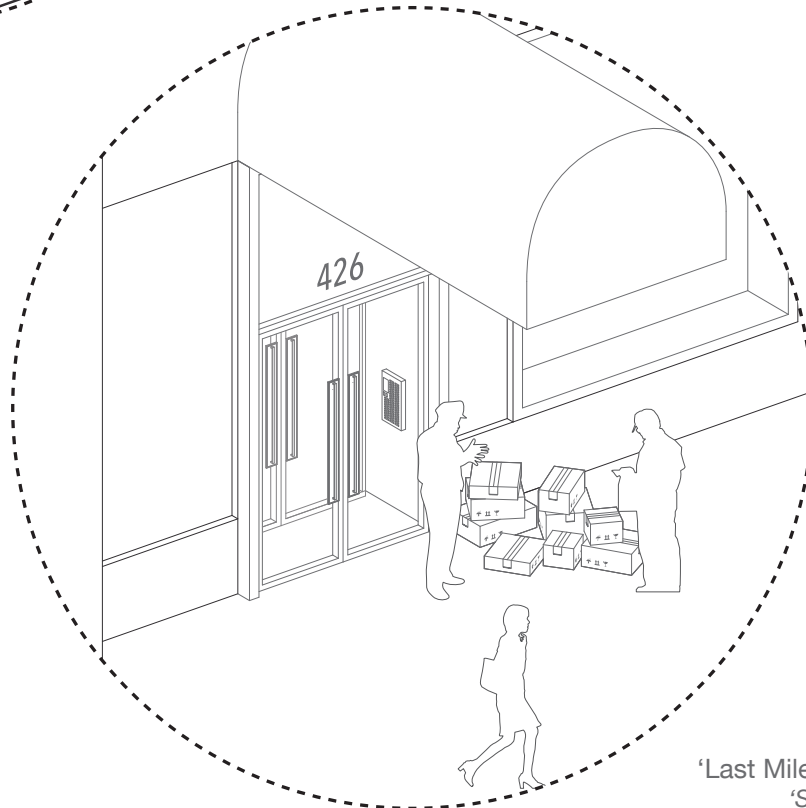
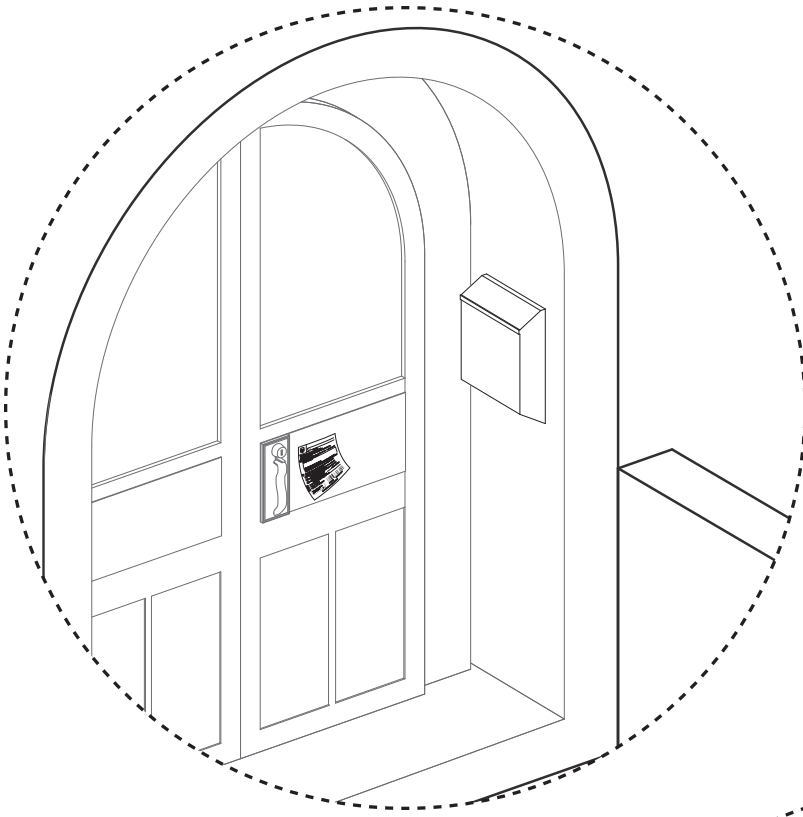
Growth of Delivery and Ecommerce
Density means more things; less space

In high-density residential areas, this congestion results in a semi-permanent architecture of logistics; occupying sidewalks, streets, bike lanes and loading zones. This is the private sector's overwhelming occupation of the public streetscape.

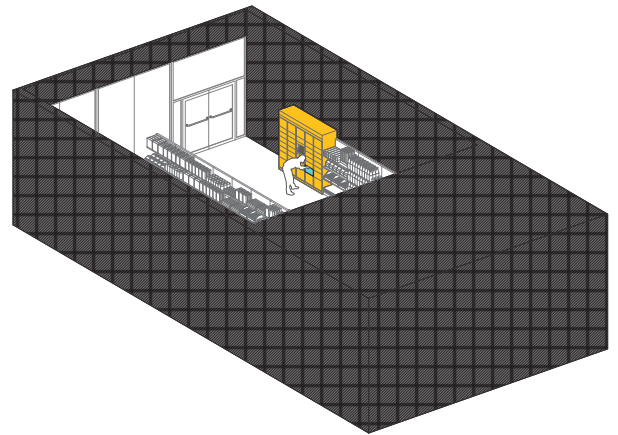
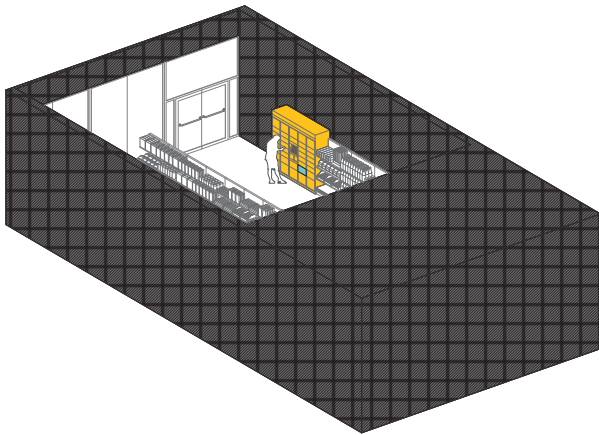
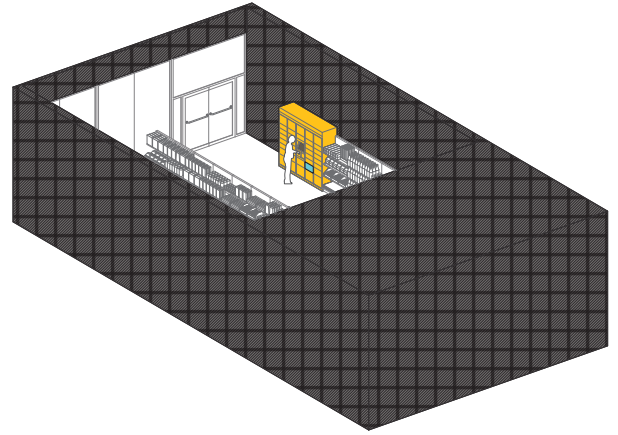
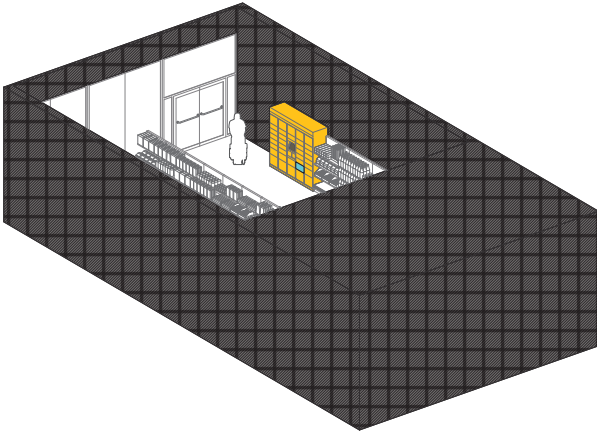
Given the particularities of any one person's schedule and place of residence, it has become increasingly common for deliveries to 'fail' or 'miss' their intended customer; often resulting in the dreaded 'Sorry we missed you...' notice on the door. Even buildings with door attendants feel the strain in both space and time for taking on their residents' packages from online purchases.

In an effort to mitigate the issues of congestion and failed deliveries, logistics and ecommerce companies have begun introducing the concept of concentrated delivery locations that are accessible to customers around the clock. Packages for multiple customers are delivered to a single location and placed in lockers until they are picked up using a unique access code emailed upon delivery. In a way, these operate similar to a post office box, however, no locker is permanently assigned, allowing for each locker to serve multiple customers as needed. Currently, these lockers operate on a limited scale as singular stations in convenient stores such as 7-11s.





'Last Mile' Issues for Delivery
'Sorry we missed you...'

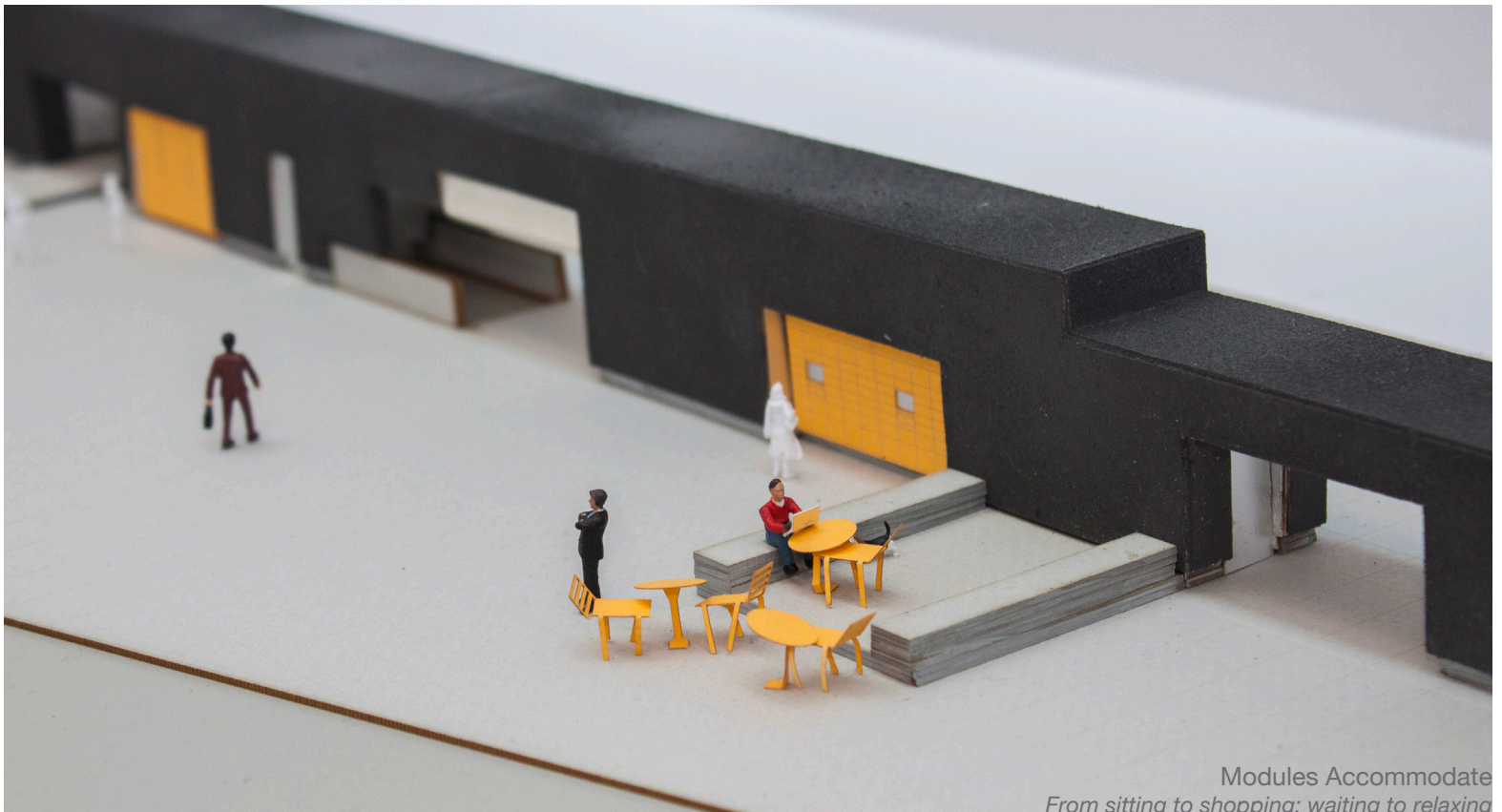


User Specific Every Time
One locker unit serves multiple users



Current Locker Models
Various examples of ecommerce lockers

This thesis takes on the position that the surge of online shopping and its resultant issues of package delivery is not only an infrastructural issue, but an urban architectural issue, and at its heart, an opportunity for the creation of a public interface and an image throughout the city; a chance to consolidate the current streetscape into a singular image. By making the concept of concentrated delivery locations a public good, the opportunity to expand its programmatic and aesthetic role within the city becomes all that more important. Through a public act, and a partnership with the private couriers, a co-sponsored endeavor would serve both the residents, visitors, and delivery companies in turning the last-mile of logistics from an issue into a new space to occupy. These architectural interventions become the framework of new public spaces by concentrating streetscape amenities such as ATMS, Mailboxes, Public Restrooms, CitiBike Stations, waste receptacles, event stages, viewing platforms, outdoor seating, elevators, refrigerated storage for groceries and vending machines all within a single architectural language and form. These forms can become the heart of the neighborhood; offering us a place to interact when our digital lives of online shopping are forced to become material.

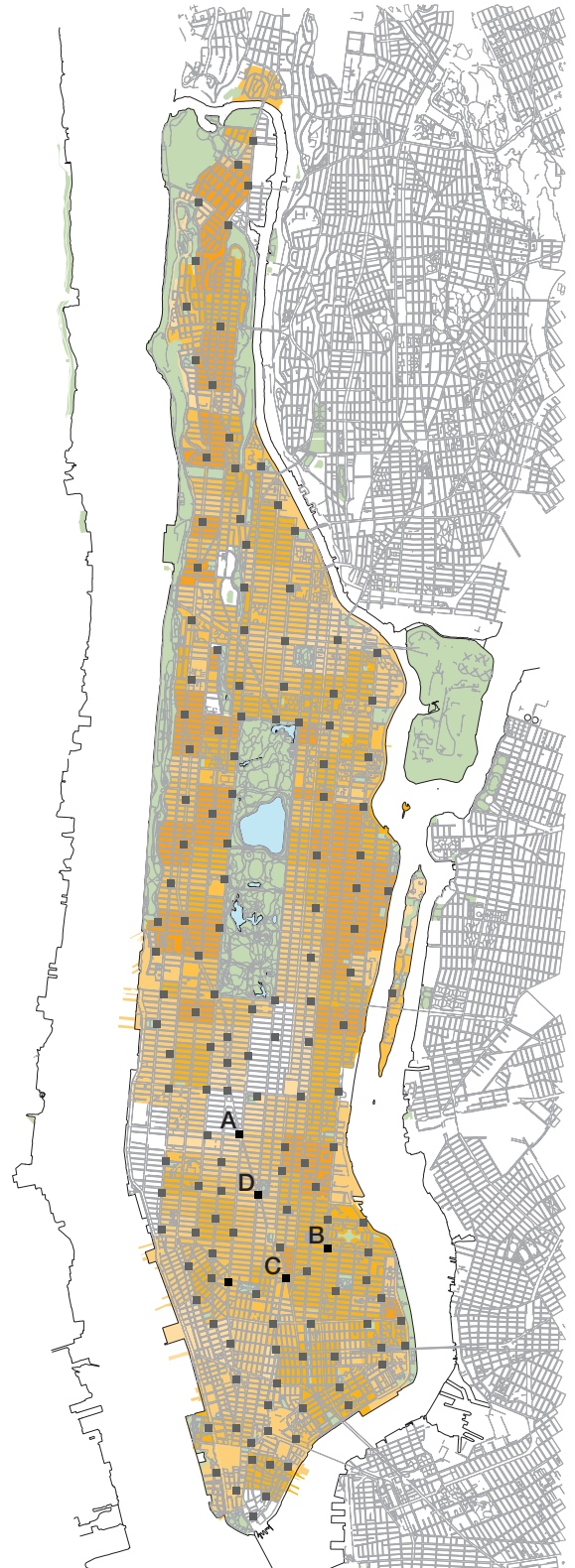


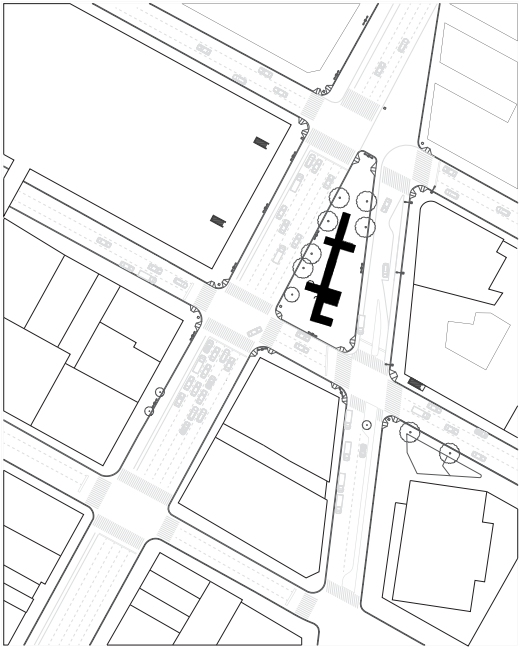
Modules Accommodate
From sitting to shopping; waiting to relaxing

Urban Strategy

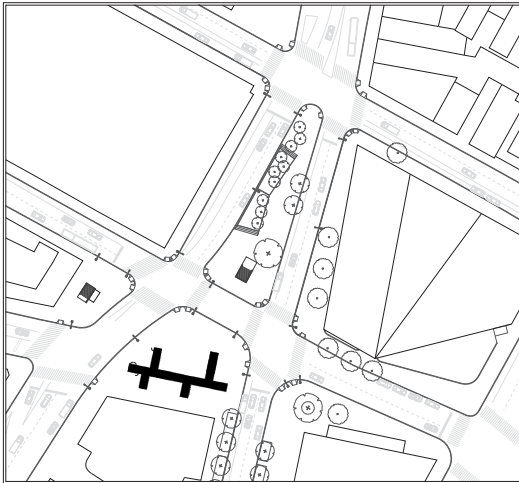
The locker systems themselves are designed to handle smaller packages under 10 pounds and are currently deployed throughout the city in a limited number. As a public amenity and an architectural intervention within the urban context, the number of locker stations must increase as well as cater in scale to the surrounding residential densities and their projected use. They must become autonomous from their current siting in convenient store locations as they increase in quantity, and instead begin to occupy the streetscape freed by the subsequent reduction in delivery vehicles required throughout the city.

On the urban scale, the siting strategy would follow similar to that used by the deployment of CitiBike stations around Manhattan; with a majority sited adjacent to or within 500 feet of a subway station. Not only does this plan take advantage of the already existing commuter traffic, it follows current planning strategies to concentrate residential development around public transportation in New York.

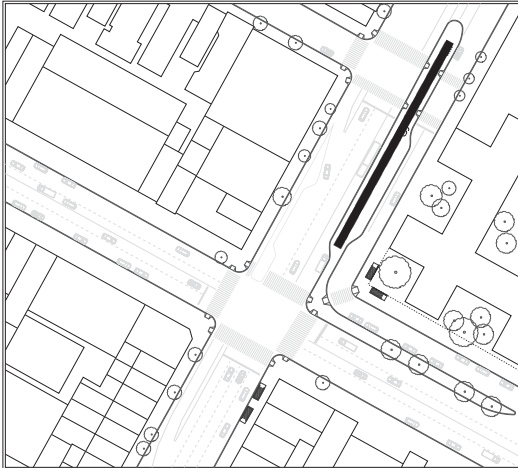




A. 32nd St. & Broadway
Island Site;
Subway Station



B. Astor Place
Peninsula Site;
Subway Station



C. 14th St. & 1st Ave.
Linear;
Subway Station



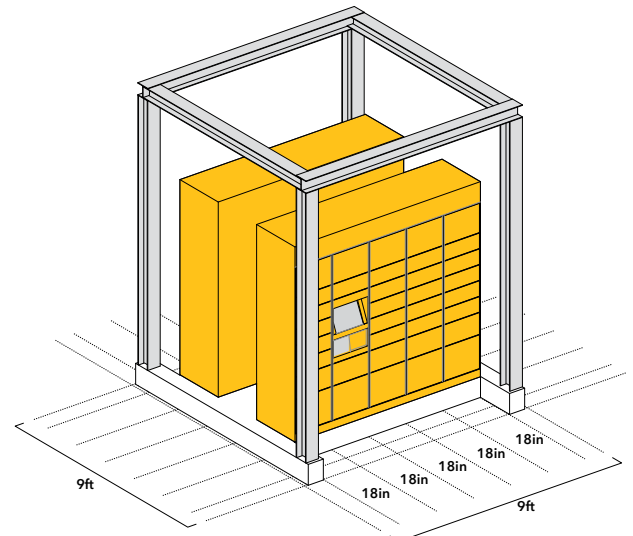
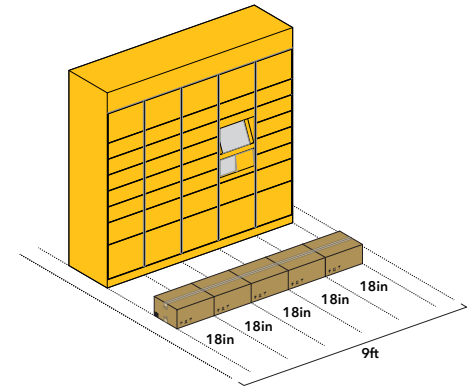
D. 23rd St. & Broadway
Island Site;
Subway Station

Design Strategy

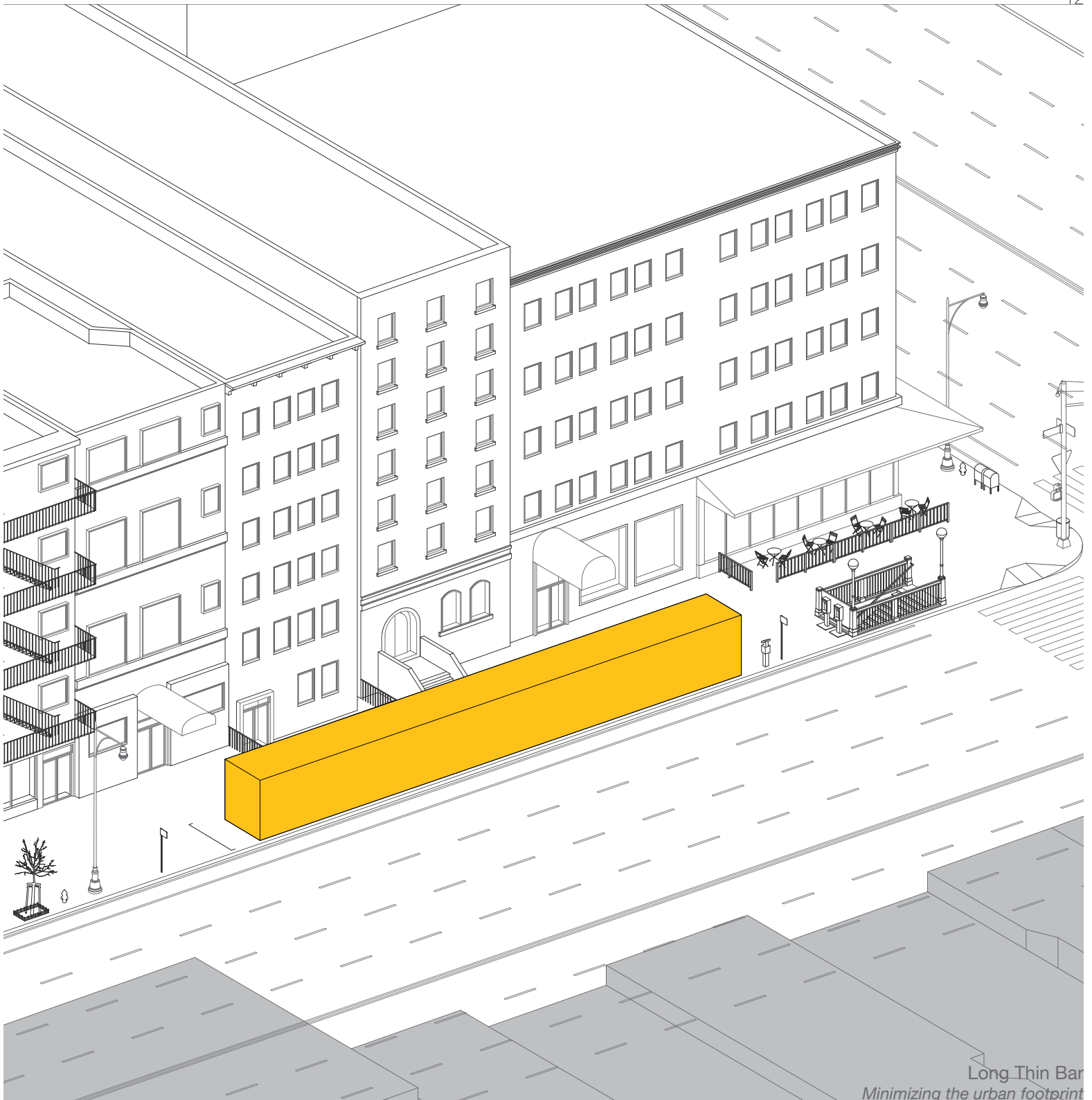
The locker's design is based on a module of 18", which correlates to the largest size packaging for deliveries of 10 pounds or less. When expanded into an individual locker station, they become 9 feet wide and when double-sided, 9 feet deep. The 9x9 module becomes the housing dimensions for all other amenities within each assemblage.

The overwhelming architectural form of the project is the 'bar'. Capable of providing an interface from either side, this form also maintains a thinness that allows for an easy deployment along the Manhattan grid. Its 9' depth is thinner than traffic lanes, parking lanes, or loading zones and is comparable to the ten-foot depth of the minimum sidewalk. Its thinness also makes it quickly traversable when walking through or around it to the other side. However, most importantly, this thinness emphasizes the exteriority of the architecture; the public interface is the bar itself.

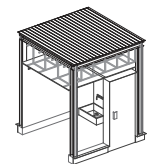
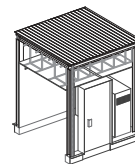
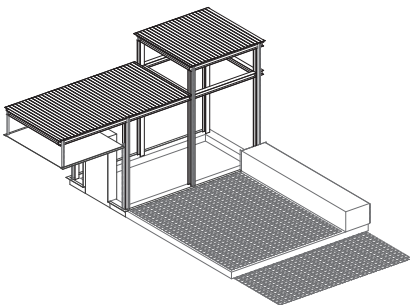
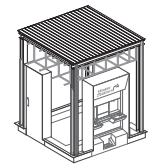
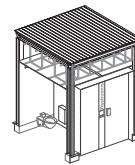
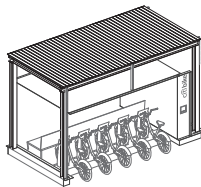
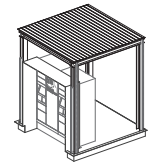
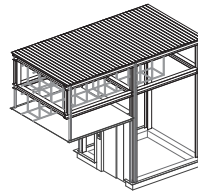
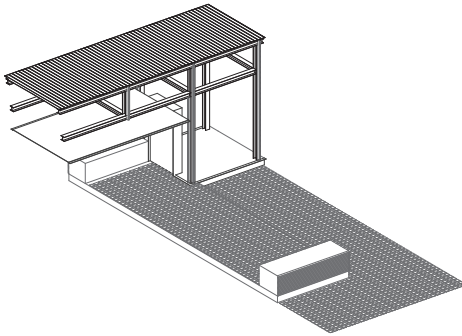
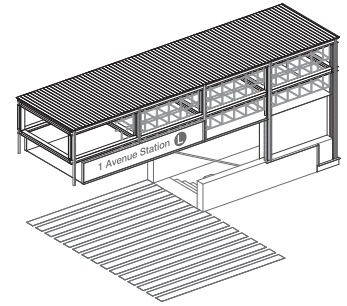
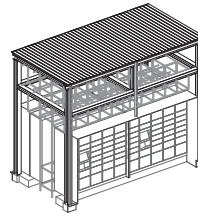
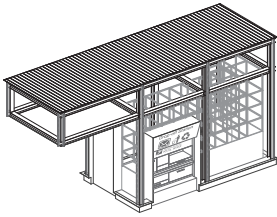
The bar is assembled through an arrangement of the various amenities in their 9x9 or in some cases, 9x18 modules. While the number and assortment of modules changes from site to site, each station has a pickup and delivery module along with the requisite locker module.



Constructing the Module
Scaled for delivery



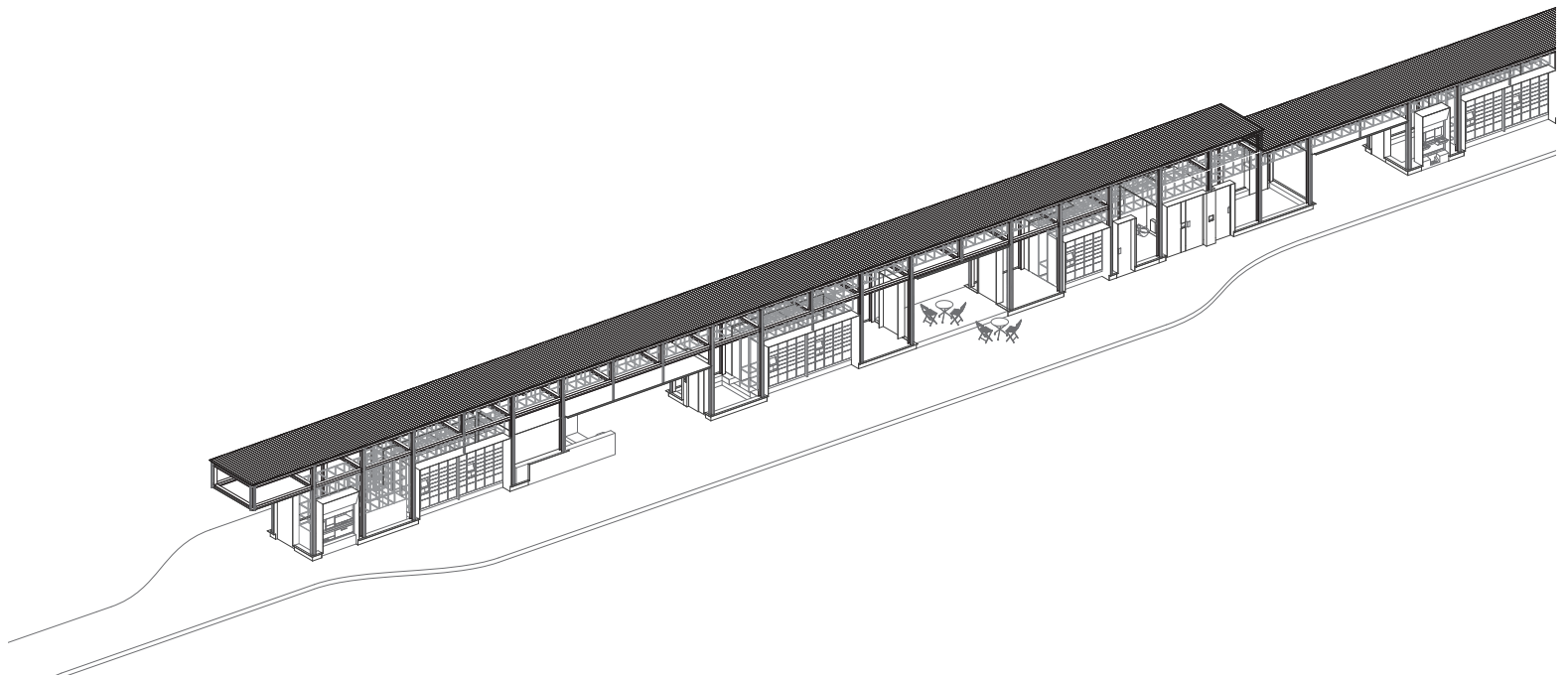
Long Thin Bar
Minimizing the urban footprint



This catalogue of modules allows for the project to take many forms and configurations, adapting to the particulars of the neighborhoods and contexts in which they are deployed.

As a building, it is largely inaccessible in any interior sense beyond the few amenities that require a certain degree of privacy. Instead, the mass of the building is occupied by the automated shelving machinery and conveyor systems that sort and place the packages after they have been delivered.

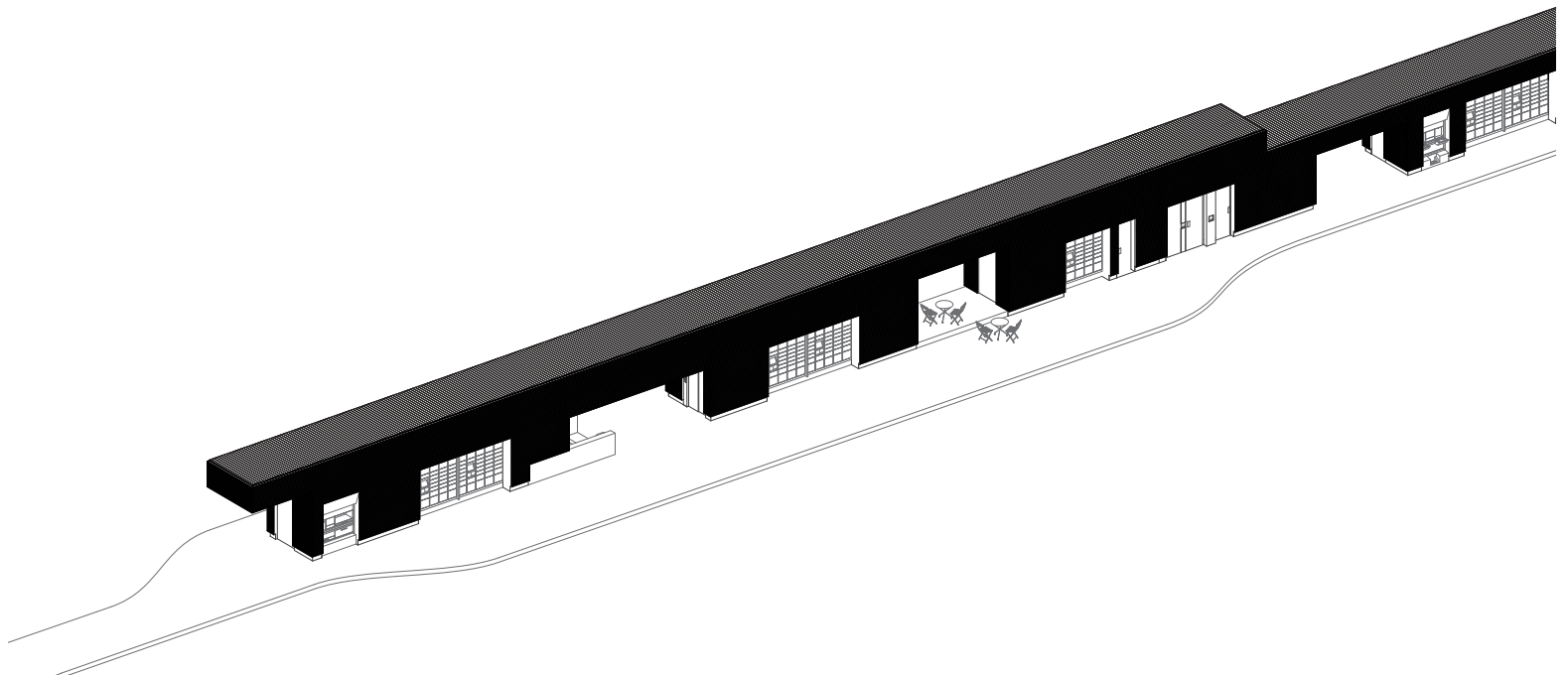
To emphasize this inaccessibility and allude to the building's industrial and mechanical interior, a super-dense louvre system enshrouds the entire form of the building. In serving a performative function, it protects the machinery from rain while simultaneously acting as the necessary ventilation and temperature control for the machinery it houses. In serving an aesthetic function, the louvres work in two ways: first, by producing a continuity and cohesiveness that hide the underlying modular arrangement and secondly, in producing an object within the urban context of Manhattan that stands distinct and in stark contrast to the surrounding multilayered, loud visual ephemera. From a distance, the individuation of the louvres is lost and the form is read as a solid object, however, upon closer inspection the finer grain is read and offers a variety of optical experiences. The horizontal louvres drag the eye across its linear composition as the building stretches out in view. This cohesiveness allows for the various configurations to maintain the same visual language across the city despite the differences in arrangement, thereby becoming easily identifiable pieces of architecture throughout Manhattan.



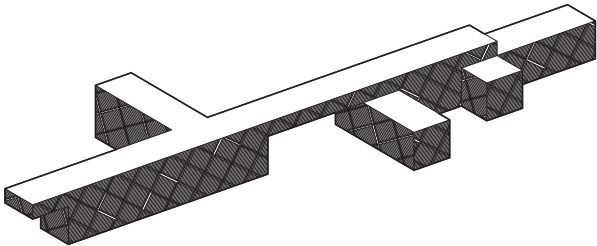
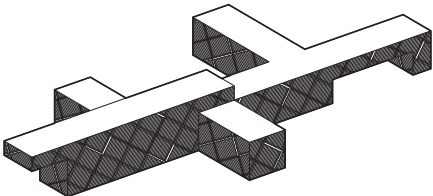
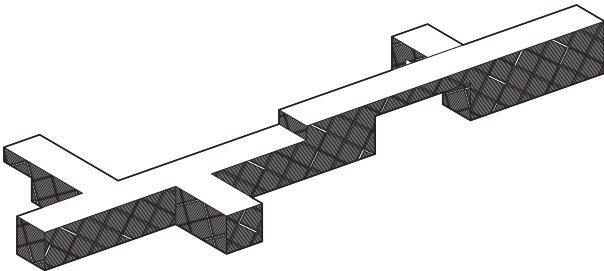
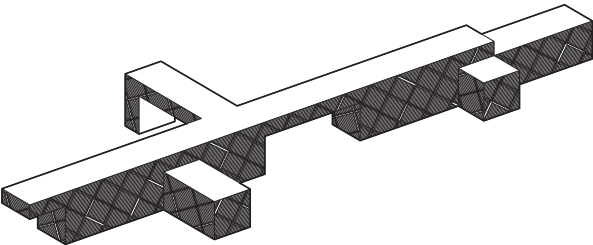
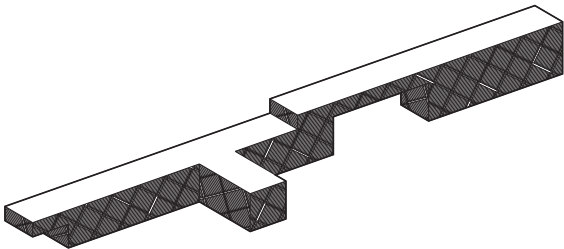
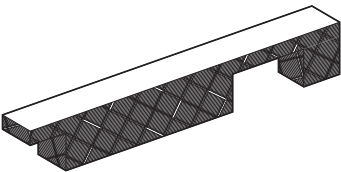
The interfaces for the amenities themselves are pushed back into the 'mass' of louvres and housed in a contrasting smooth finished aluminum. This contrast and the change in depth of the façade further emphasizes the 'mass' that the louvres are housing. Each interface follows the same modularity established in the locker system so that an overall proportional vocabulary translates through to the components that are accessible to the public. The interfaces themselves further contrast with the overall façade through their bright colors and signage which draws users towards them and indicate what they are. Since the components themselves are inset 18" into the façade, the interface literally draws the users into the 'mass'. Not only does this inset serve as rain coverage, but it affords a degree of privacy while preventing any feelings of entrapment within the space.

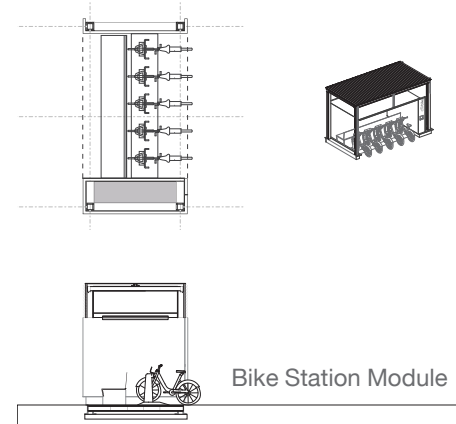
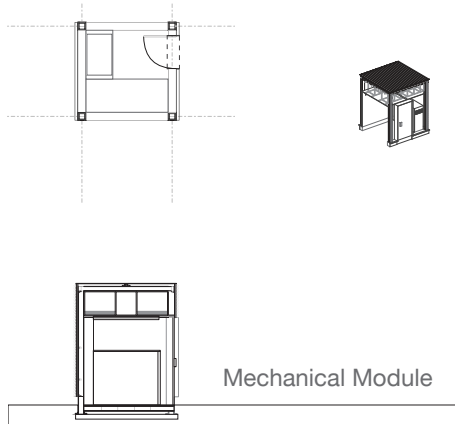
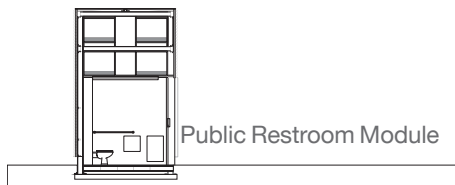
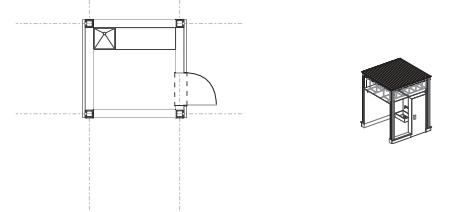
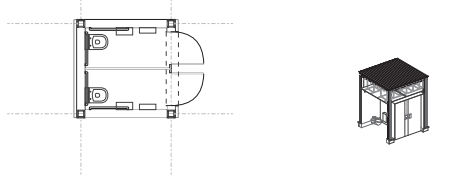
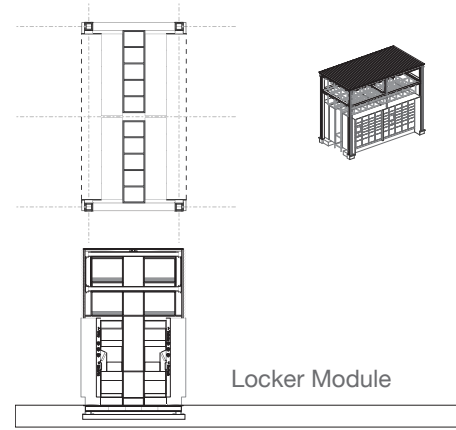
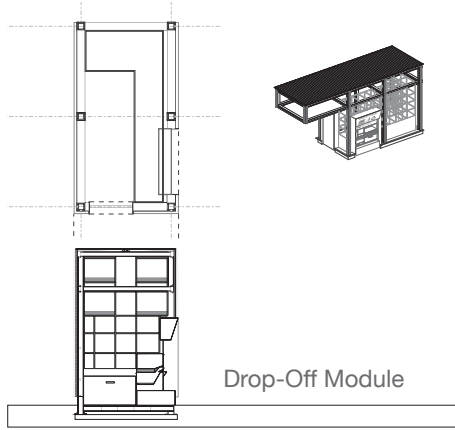
The smooth, finished aluminum also runs as a hidden 9" reveal along the bottom of the modules making it appear as though the mass of louvres was ever so slightly floating above the sidewalk. This further unifies the modules and their linearity while hinting at the mobile nature of package delivery.

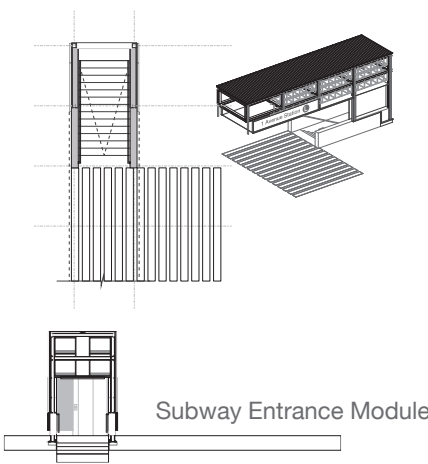
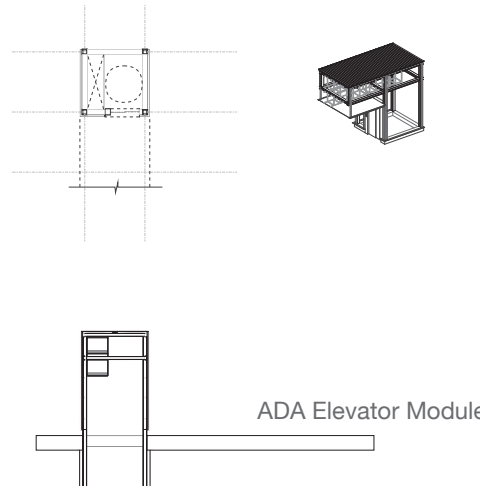
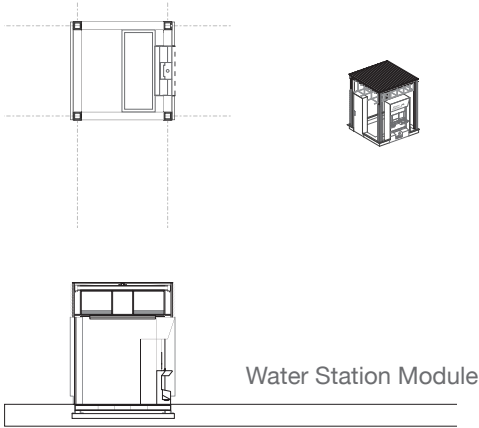
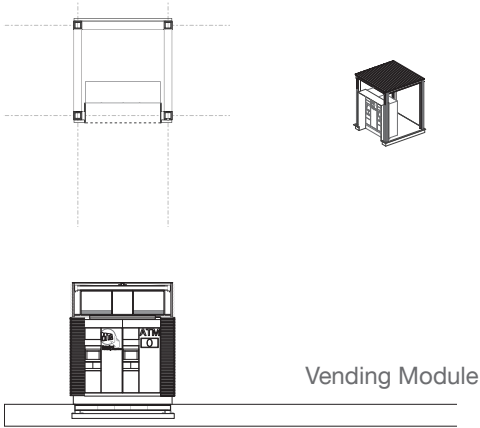
In their relationship to the ground, small concrete platforms are pulled out of the floating mass as seating and performance areas. These become formal instruments in the particular siting strategies while providing space for community or ad hoc events along the sidewalk or plaza.



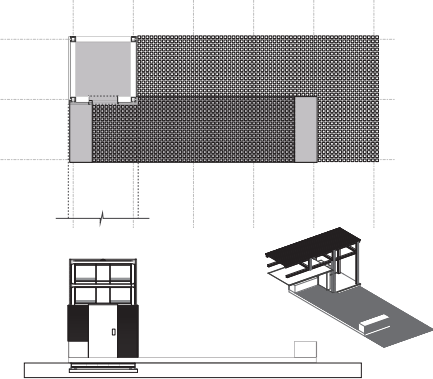
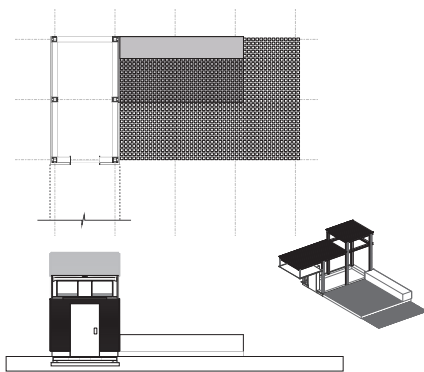
Linear Arrangement
The form becomes the interface







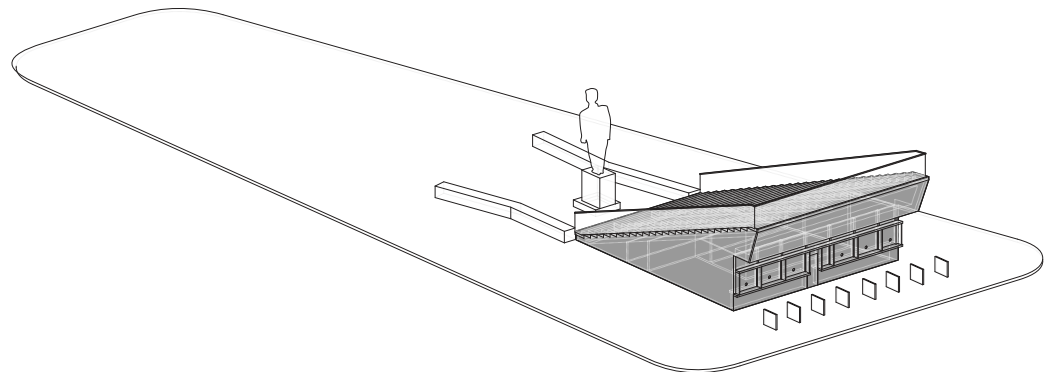
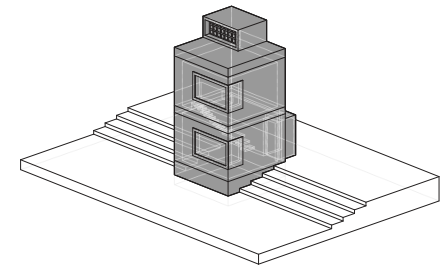
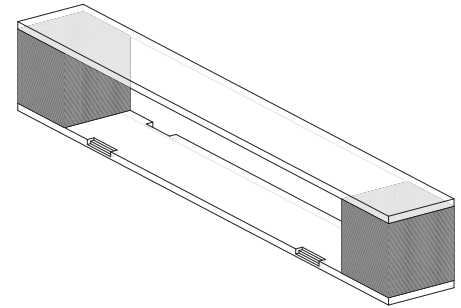
Community Platform Modules



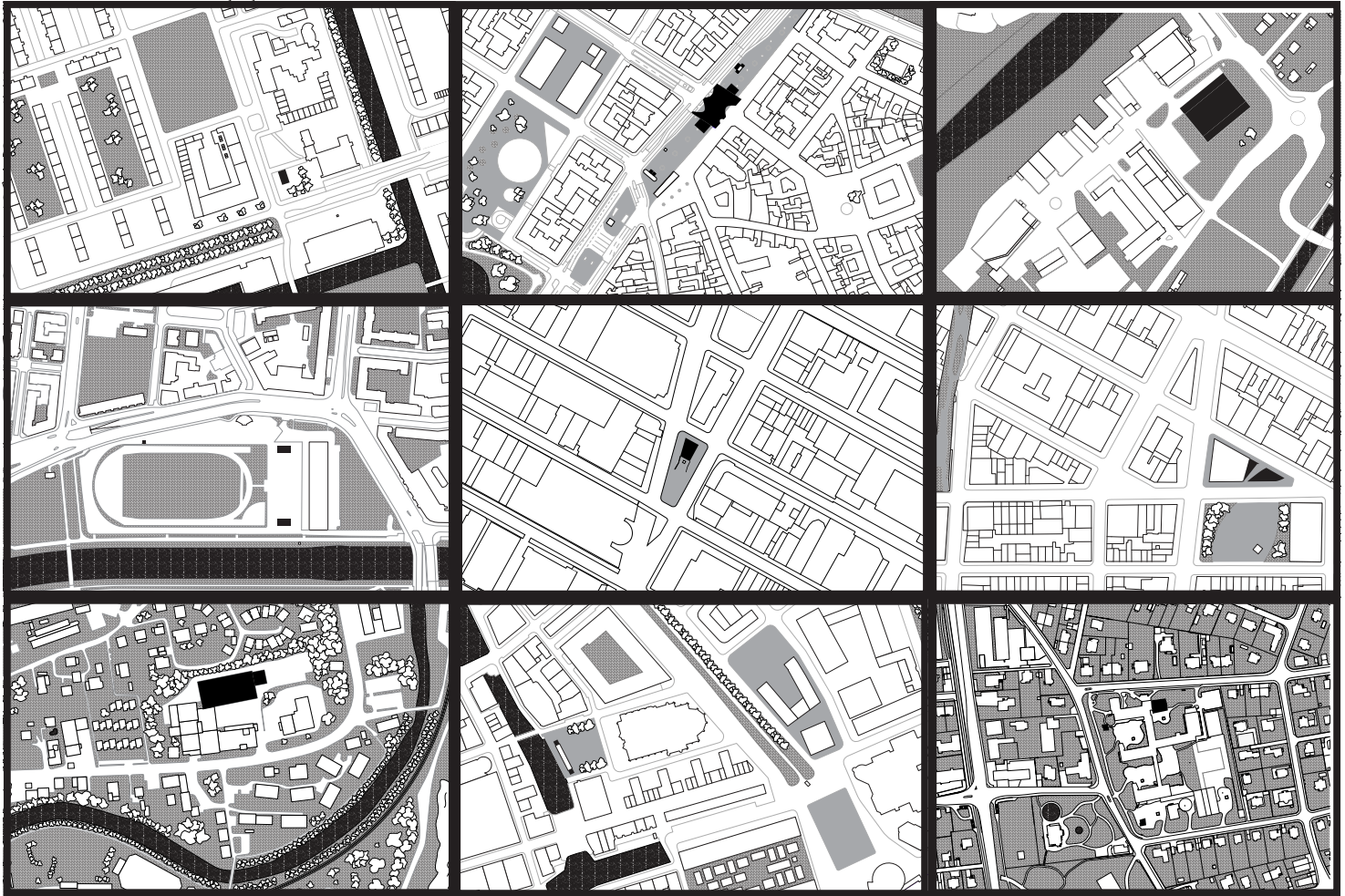
Siting Strategies

Various siting sensibilities have been drawn from a series of precedent studies that looked to both industrial warehouses and small-scale support facilities that were part of larger compositions. Their deployment was used to emphasize or correct certain axes or divisions on their sites through deviating alignments or lopsided framing. Another similarity to my project is in their sympathetic programs and their roles as ancillary structures to larger facilities. Mostly unoccupied or unoccupiable, these precedents shape their surrounding spaces through their exterior forms and finishes; serving as a material interface for the occupation of the areas around them.

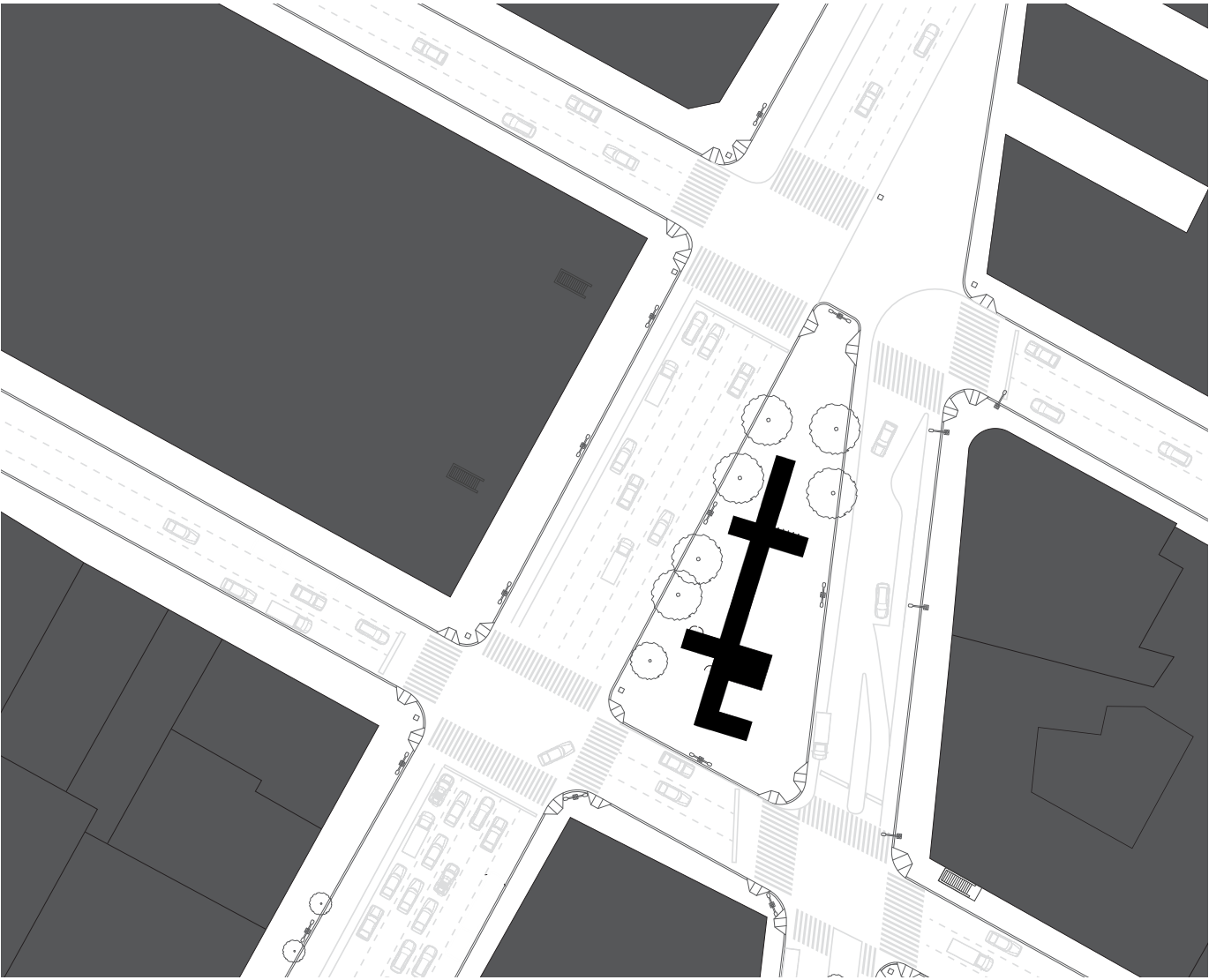
There are four iterations highlighted in this project. They occupy different parts of the city to various effect and represent the elastic nature of the design principles just highlighted. As stated before, the 'bar' form is the 'urform' for this project and these siting strategies look to produce assemblages that reconfigure the bar of modules in order to direct and emphasize their contextual surroundings such as parks, existing infrastructure, and street facades. Their configurations and forms emphasize or correct existing street axes or produce episodic framings onto existing park spaces. Four particular sites have been selected to exhibit these iterations: Astor Pl. off Lafayette, Greeley Sq., Madison Square Park Plaza in front of the Flatiron Building, and Stuyvesant Town on 14th and 1st.



Isometric Drawings: Open Air Theatre, Atelier Kempe Thill, Rotterdam NL/2010; Sihlholzi Sports Center, Boltshauser Architects, Zurich CH/2002; TKTS, Perkins Eastman, New York US/2008

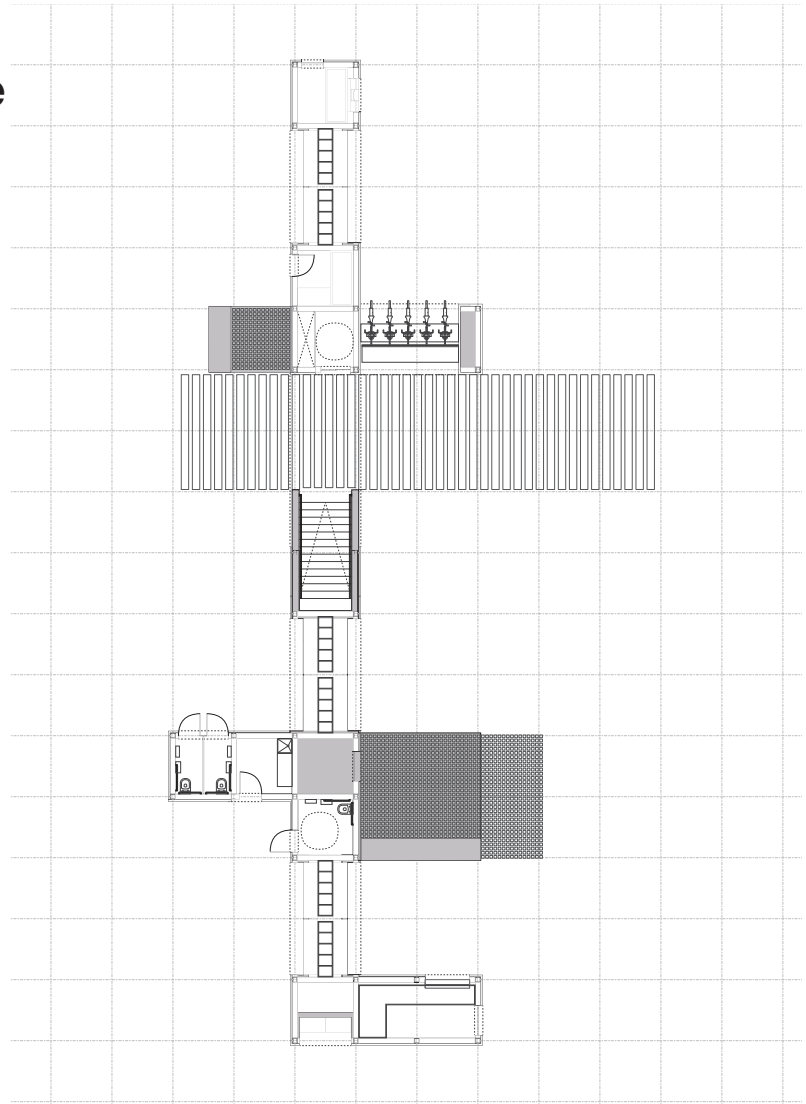


Clockwise from top left: Youth Center, Atelier Kempe Thill, Amsterdam NL/2012; Norreport Station proposal, XDGA, Copenhagen DK/unbuilt 2009; Blaustatt Ricola Factory, Herzog & De Meuron, Mülhausen-Brunstatt FR/1993; Sihlholzi Sports Center, Boltshauser Architects, Zurich CH/2002; TKTS, Perkins Eastman, New York US/2008; Yohiji Yamamoto Store, Ishigami, New York US/2008; Laufen Ricola Factory, Herzog & De Meuron, Laufen CH/1987; Open Air Theatre, Atelier Kempe Thill, Rotterdam NL/2010; Erweiterung Schule, Boltshauser Architects, Aarau CH/2012

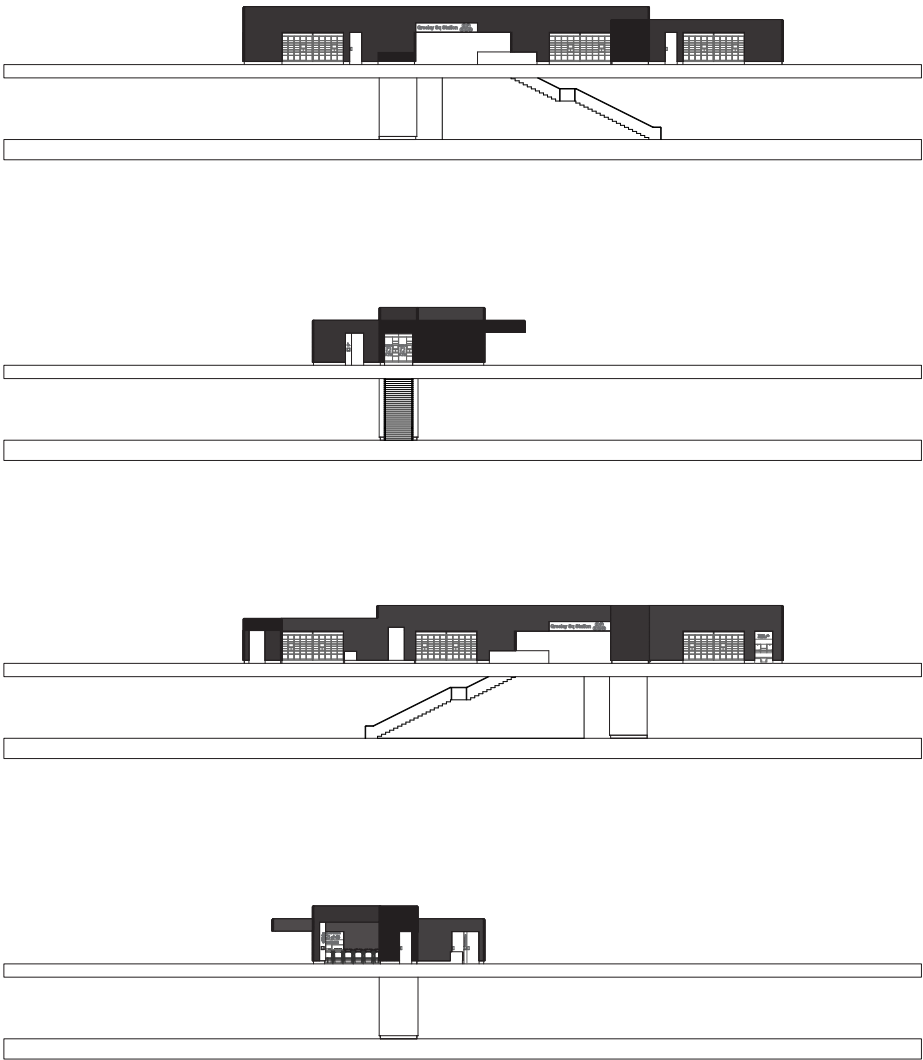


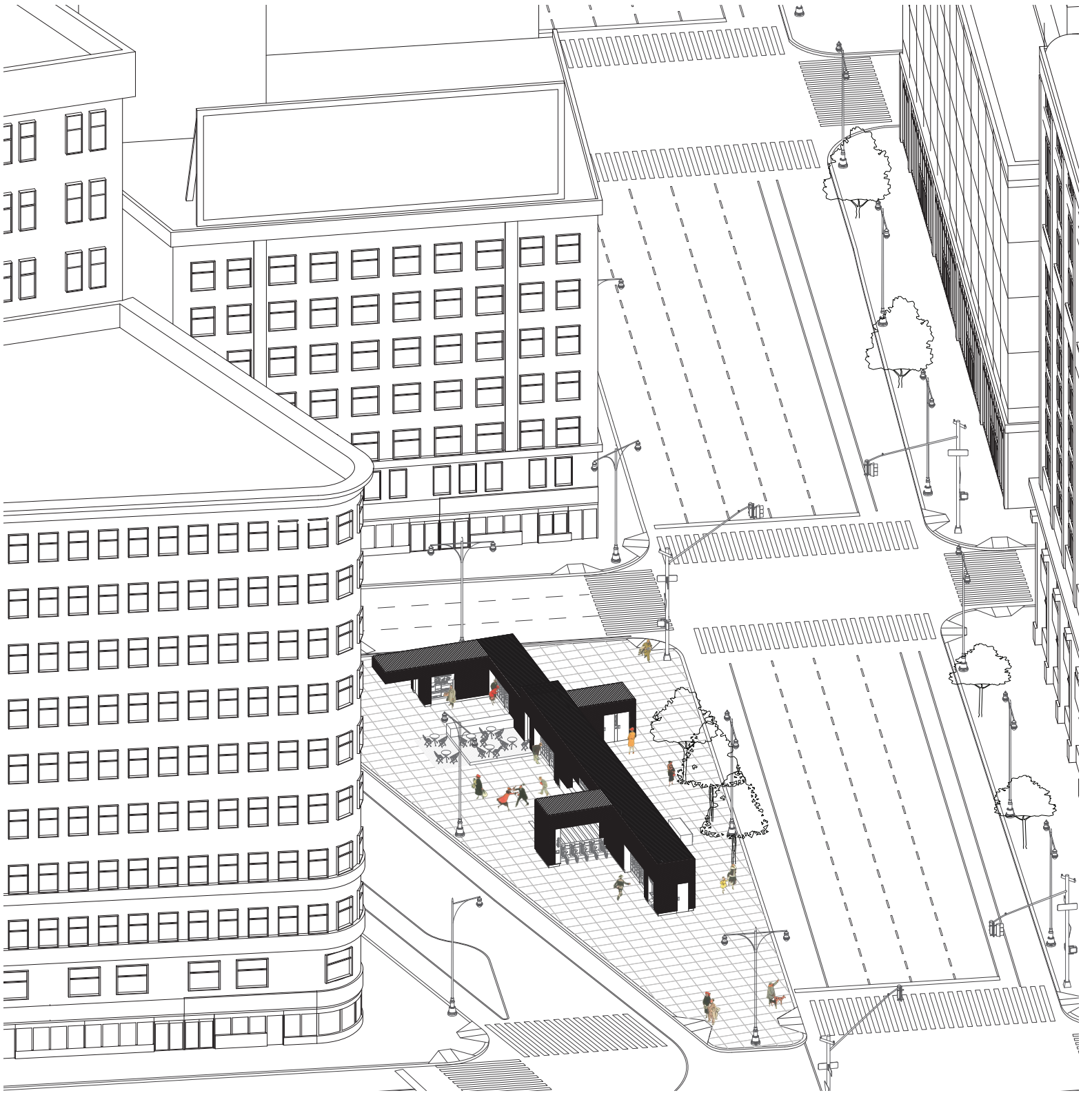
Greeley Square
Broadway & Sixth Avenue
Greeley Square Station

Module Count: 15



Elevations



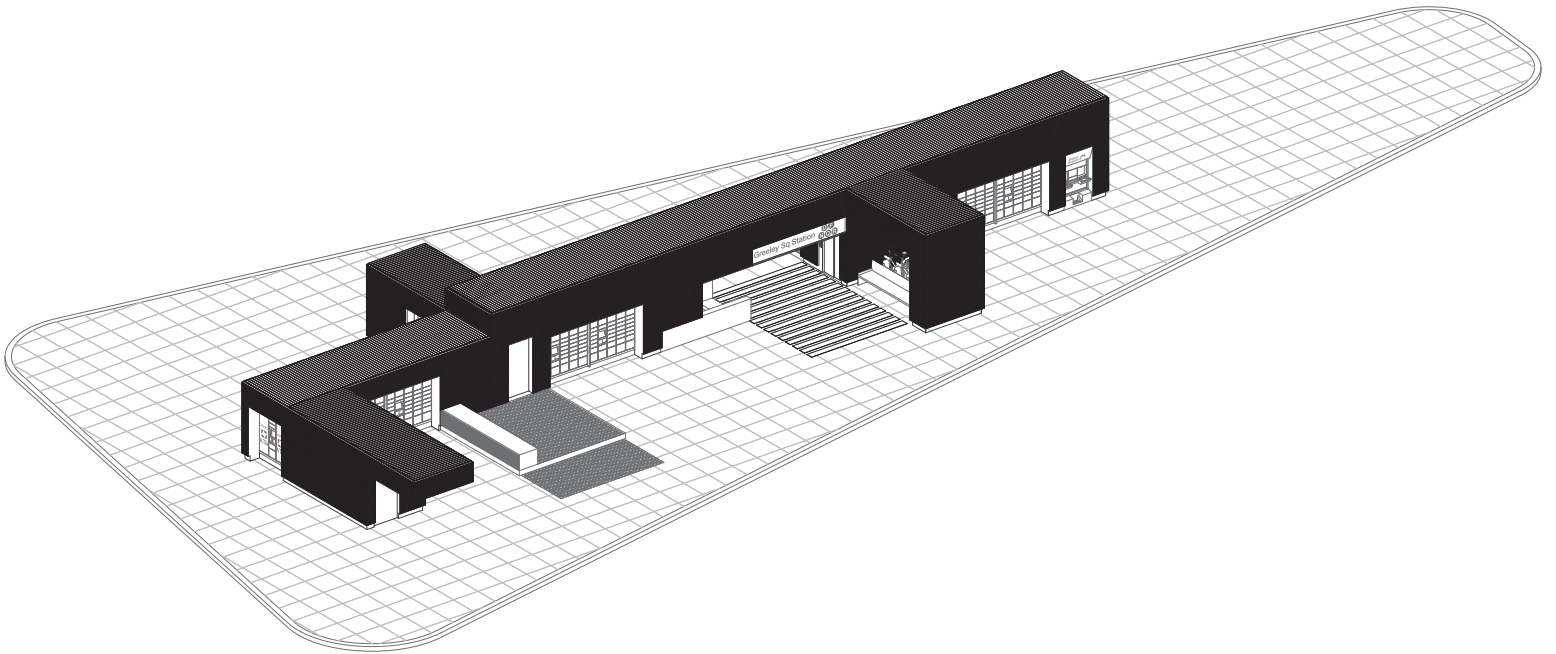


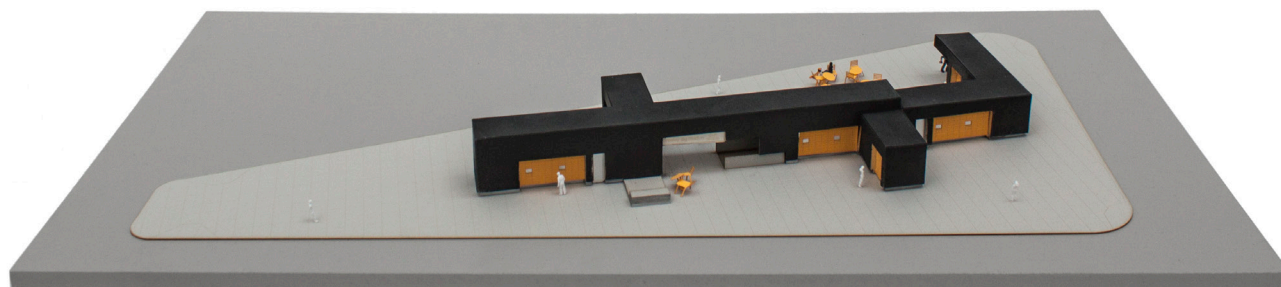
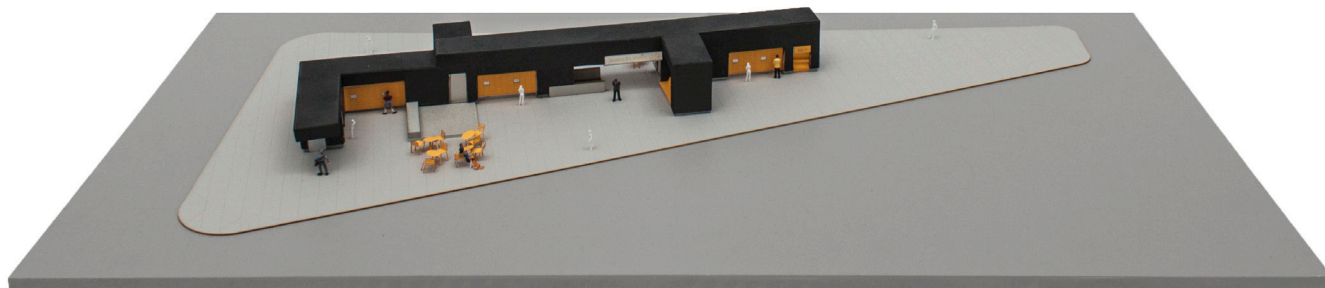


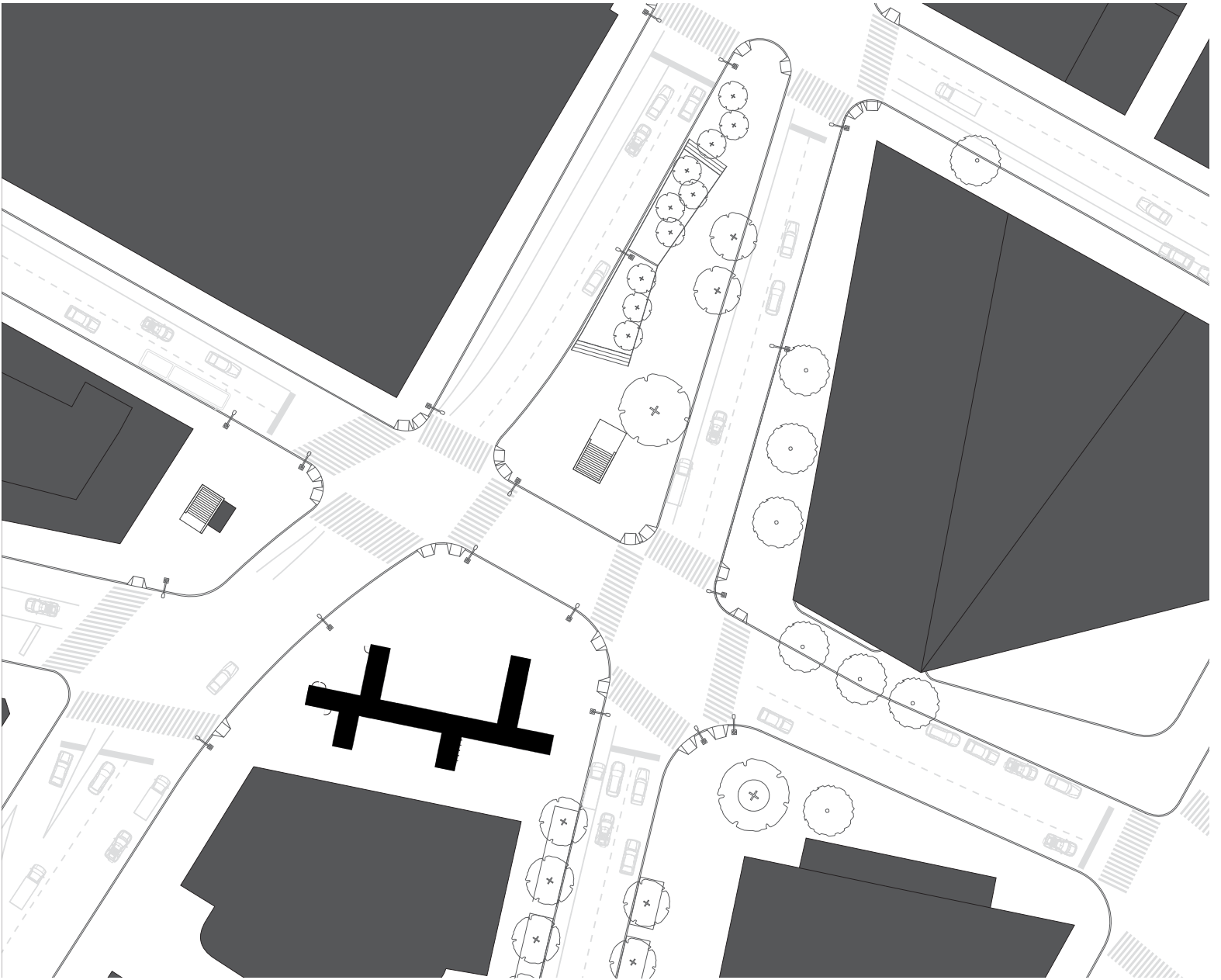
Rendering
(opposite)







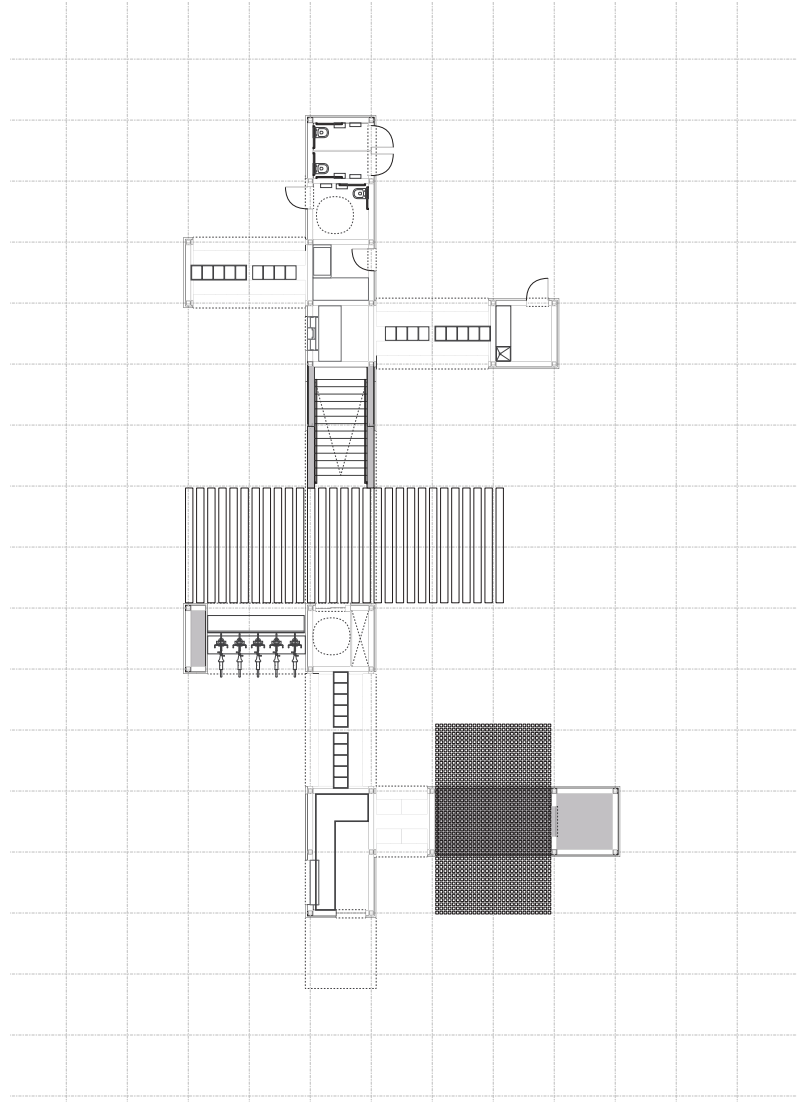




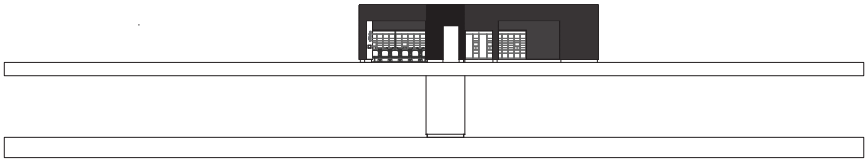
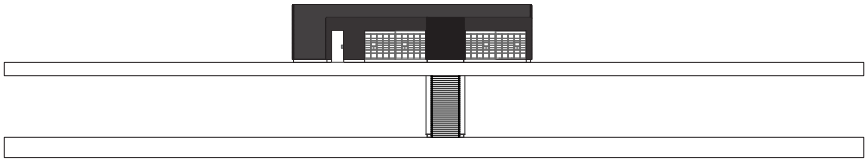
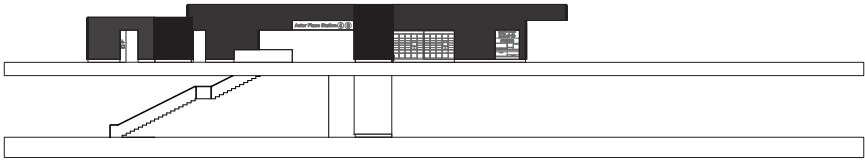
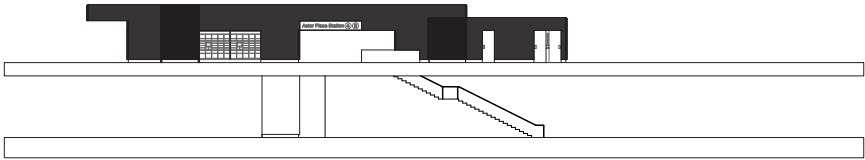
Astor Place
East 8th & Fourth Avenue
Astor Place Station

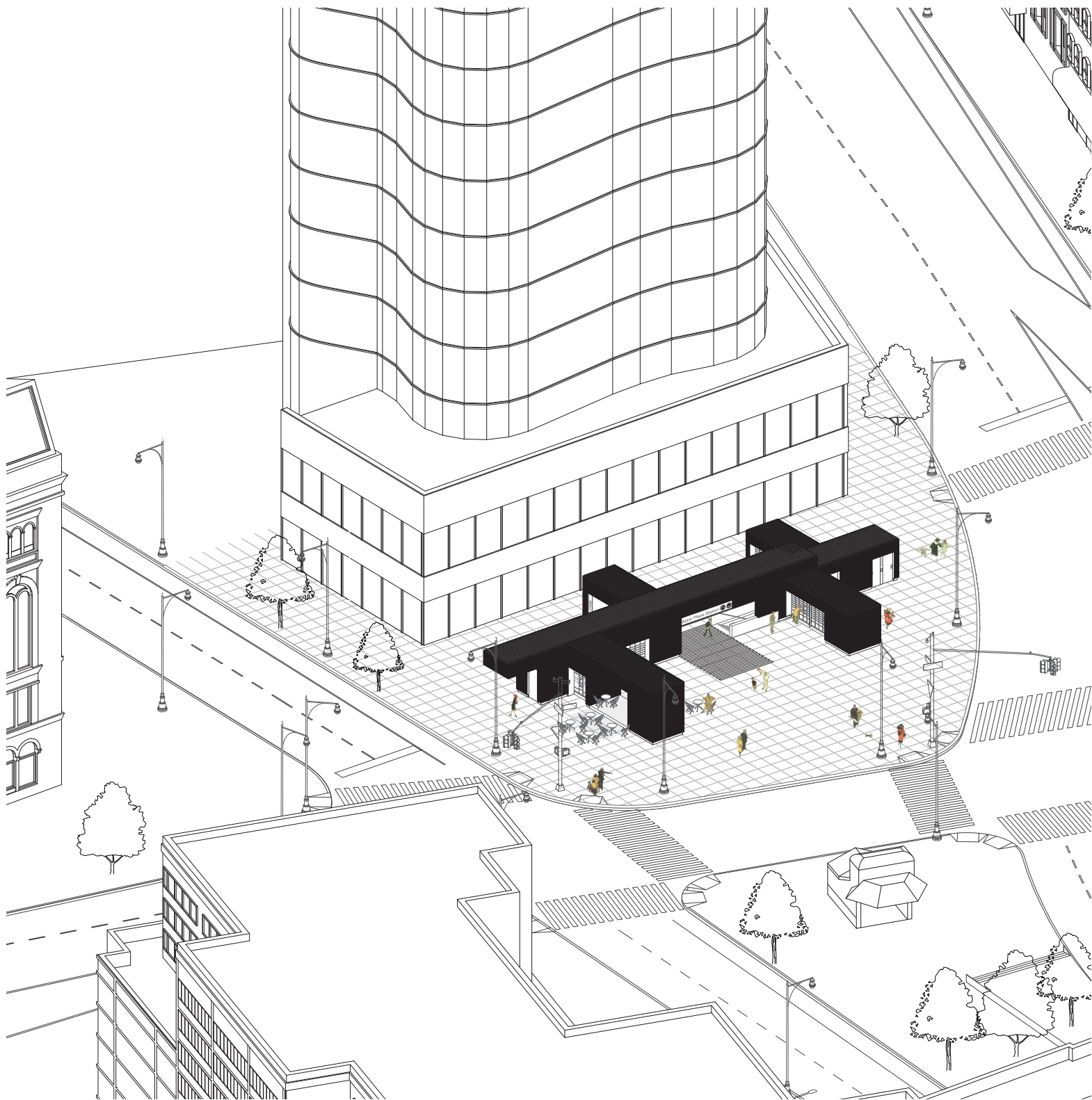
Module Count: 14

4 5



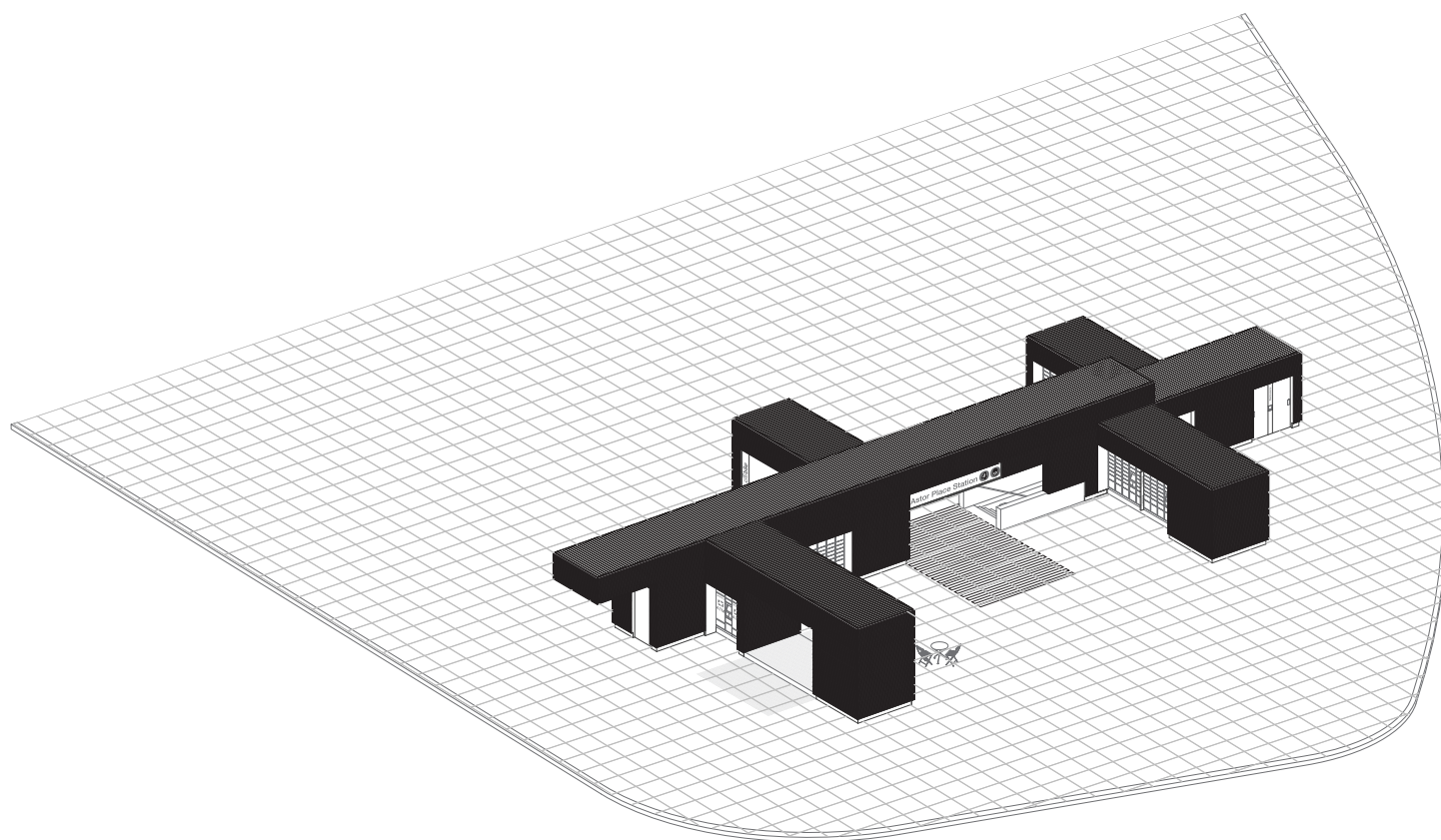
Elevations

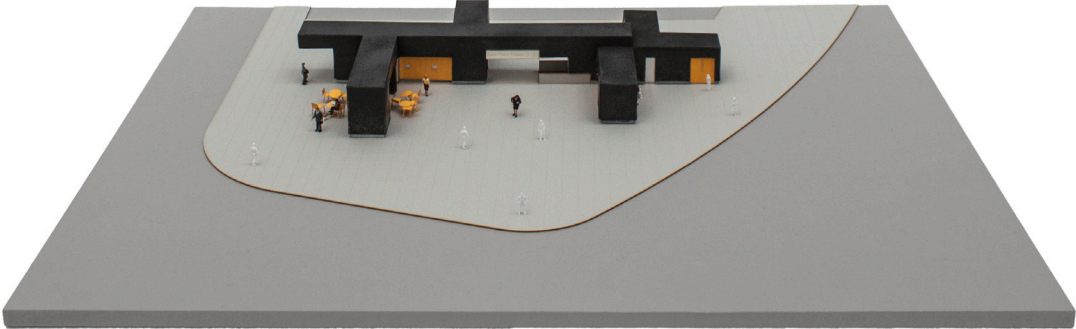
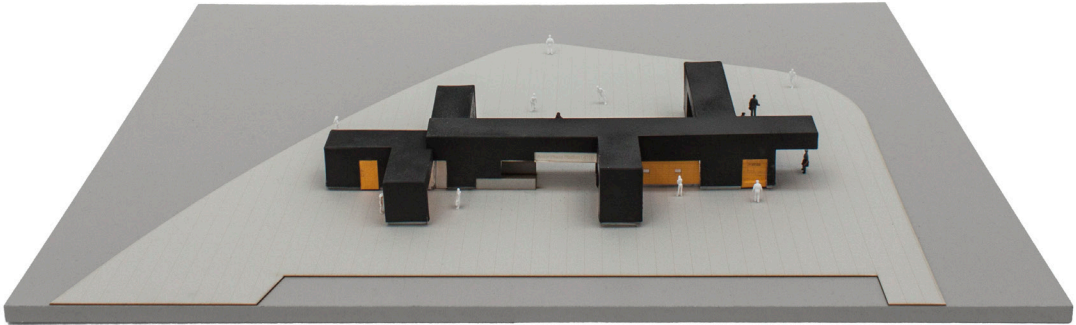






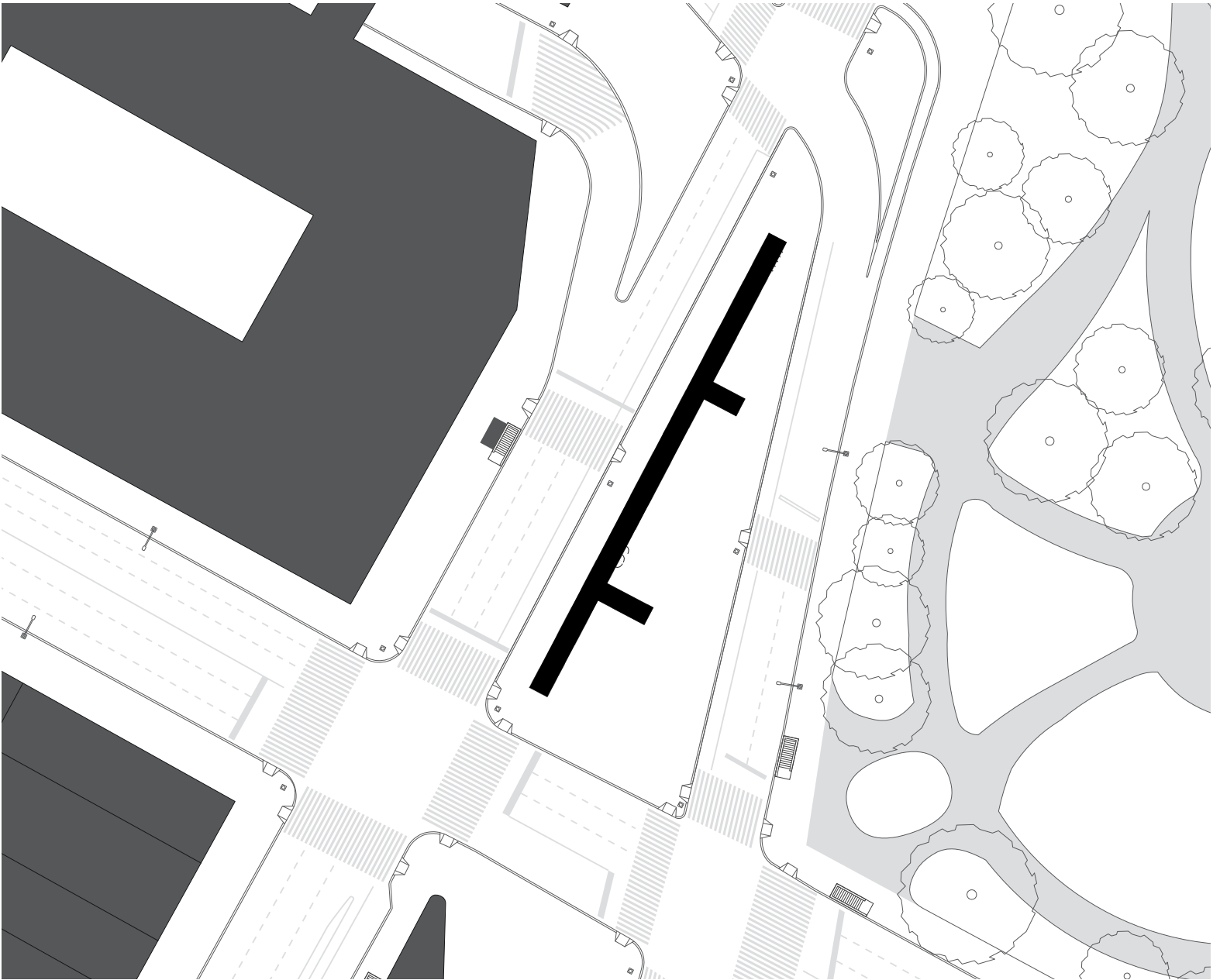
Rendering
Module Isometric (opposite)





Model Photographs
(opposite)



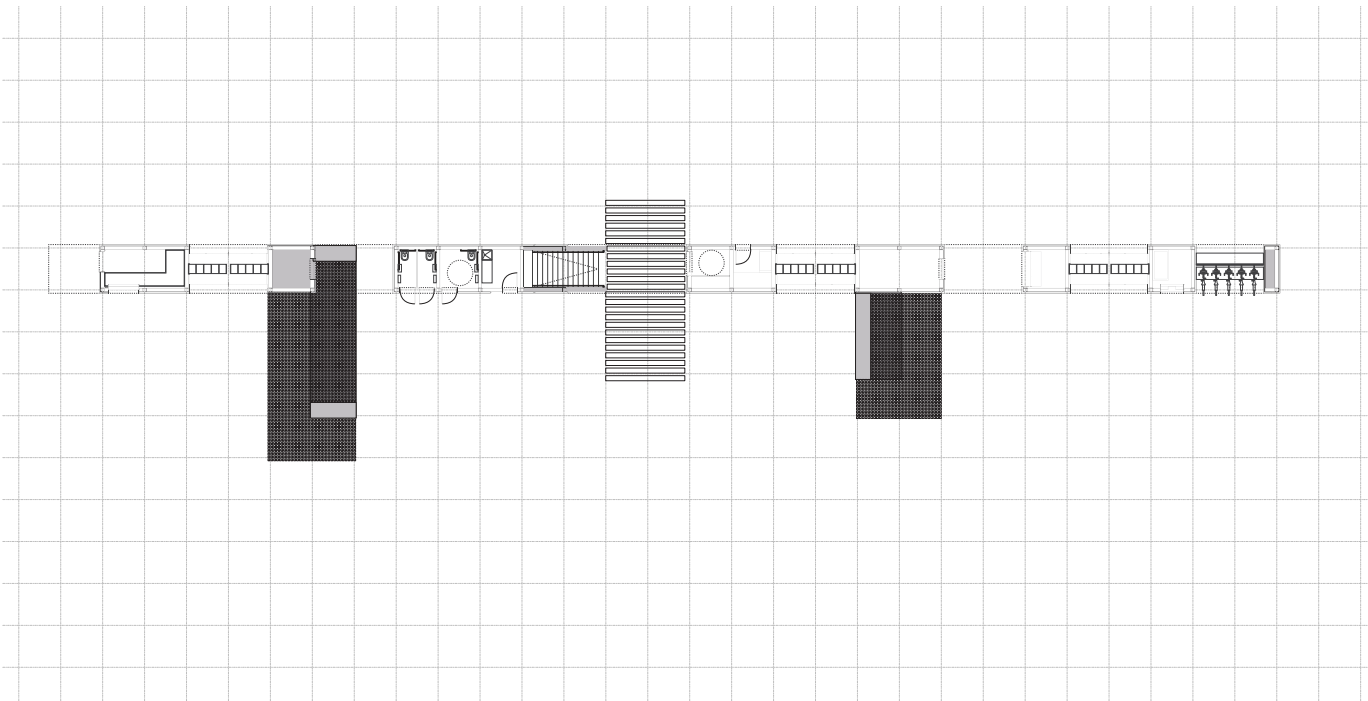


Madison Square

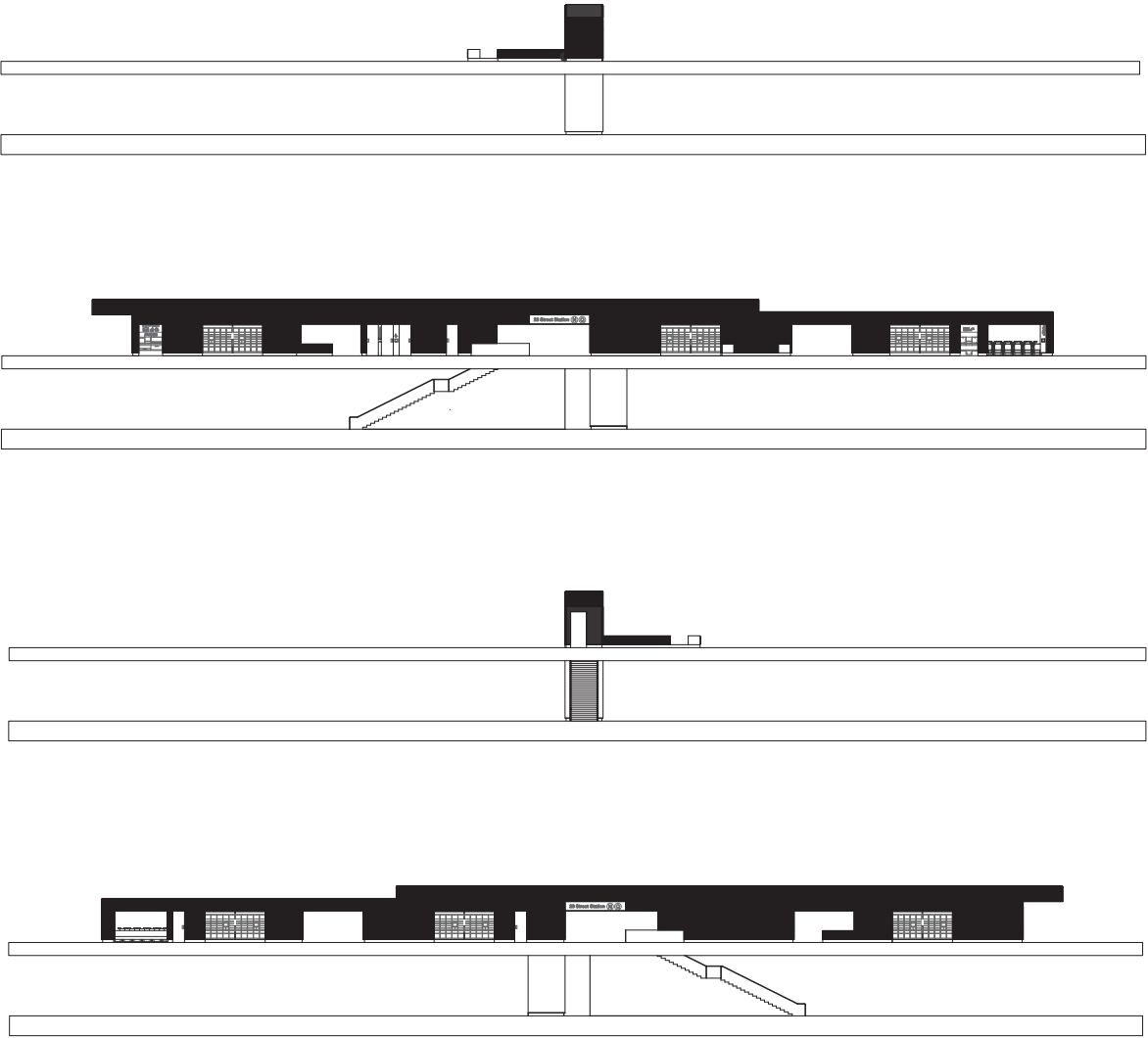
23rd Street & Broadway

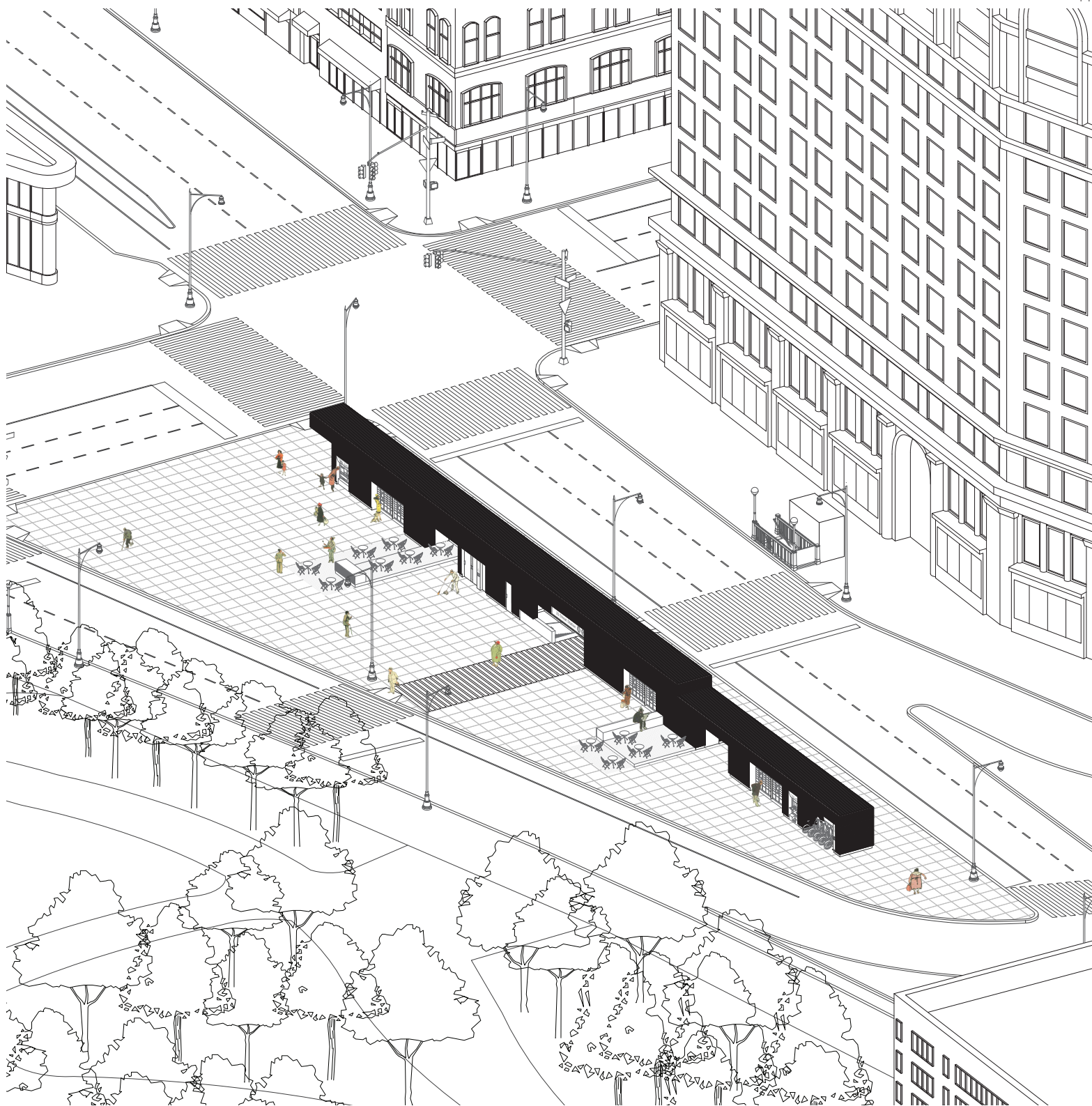
23rd Street Station

Module Count: 15

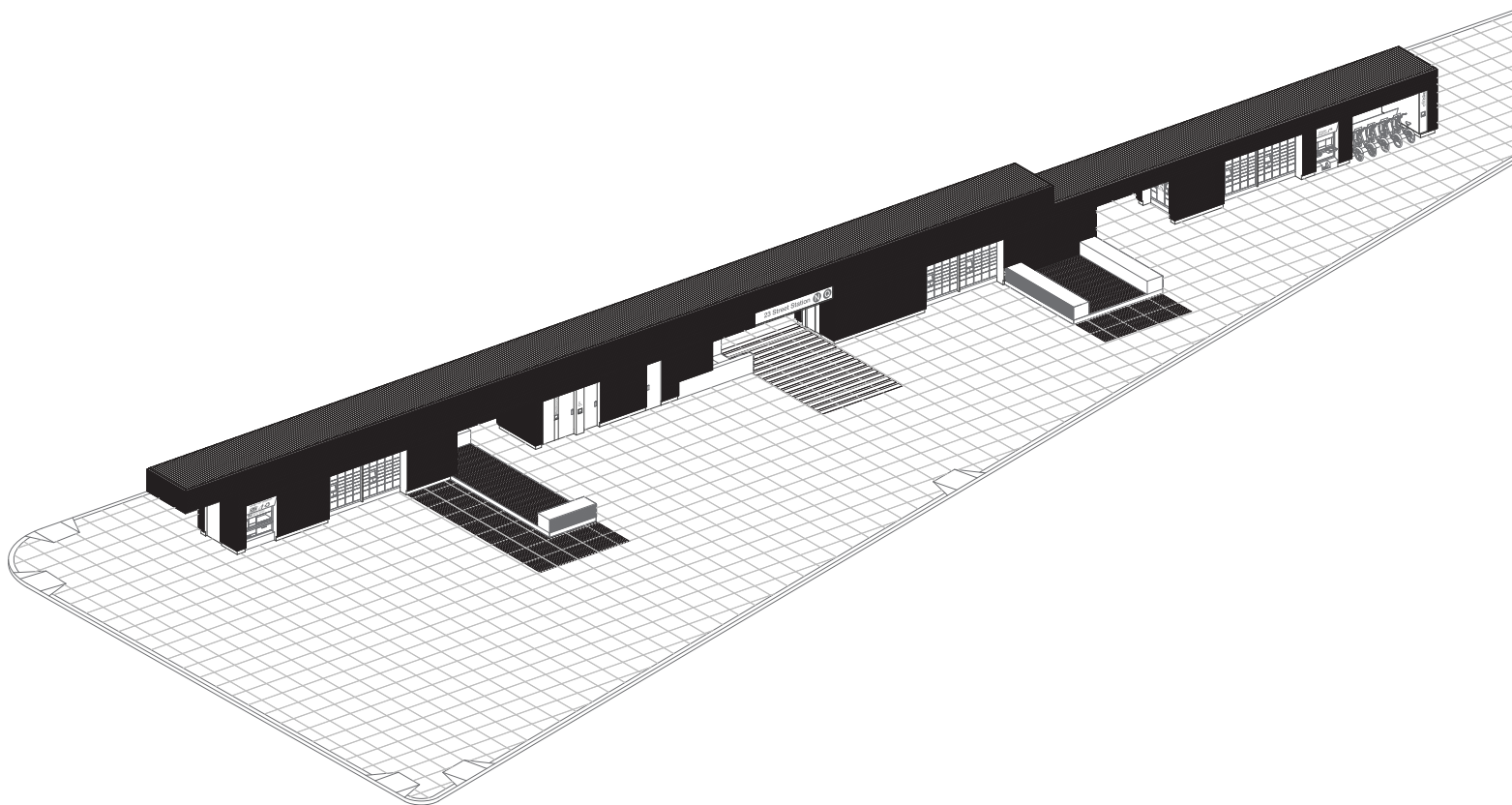


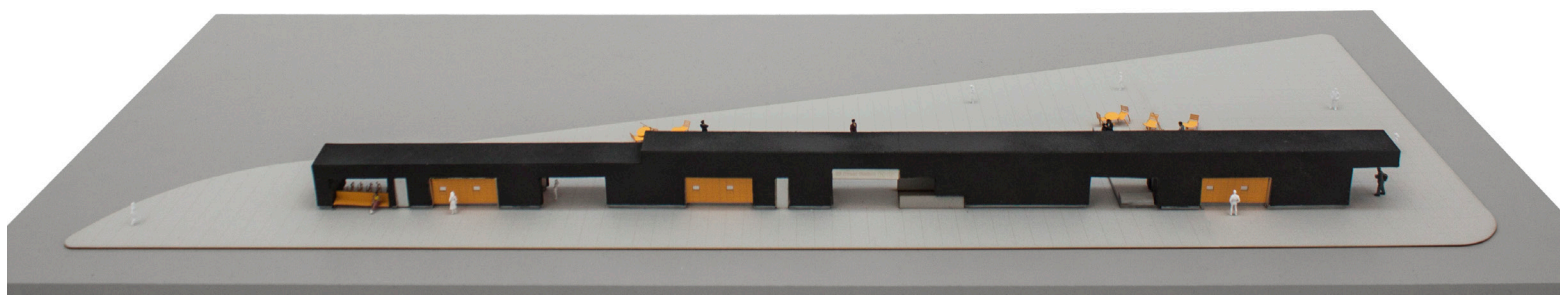
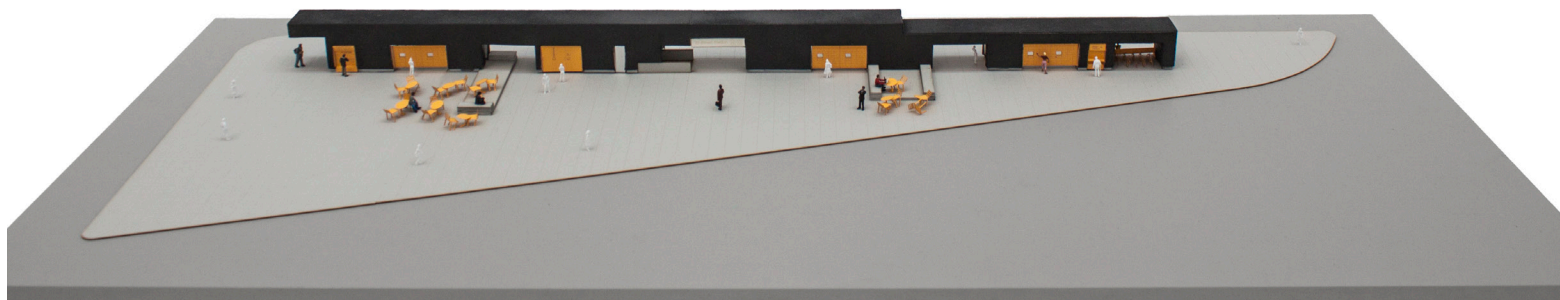
Elevations





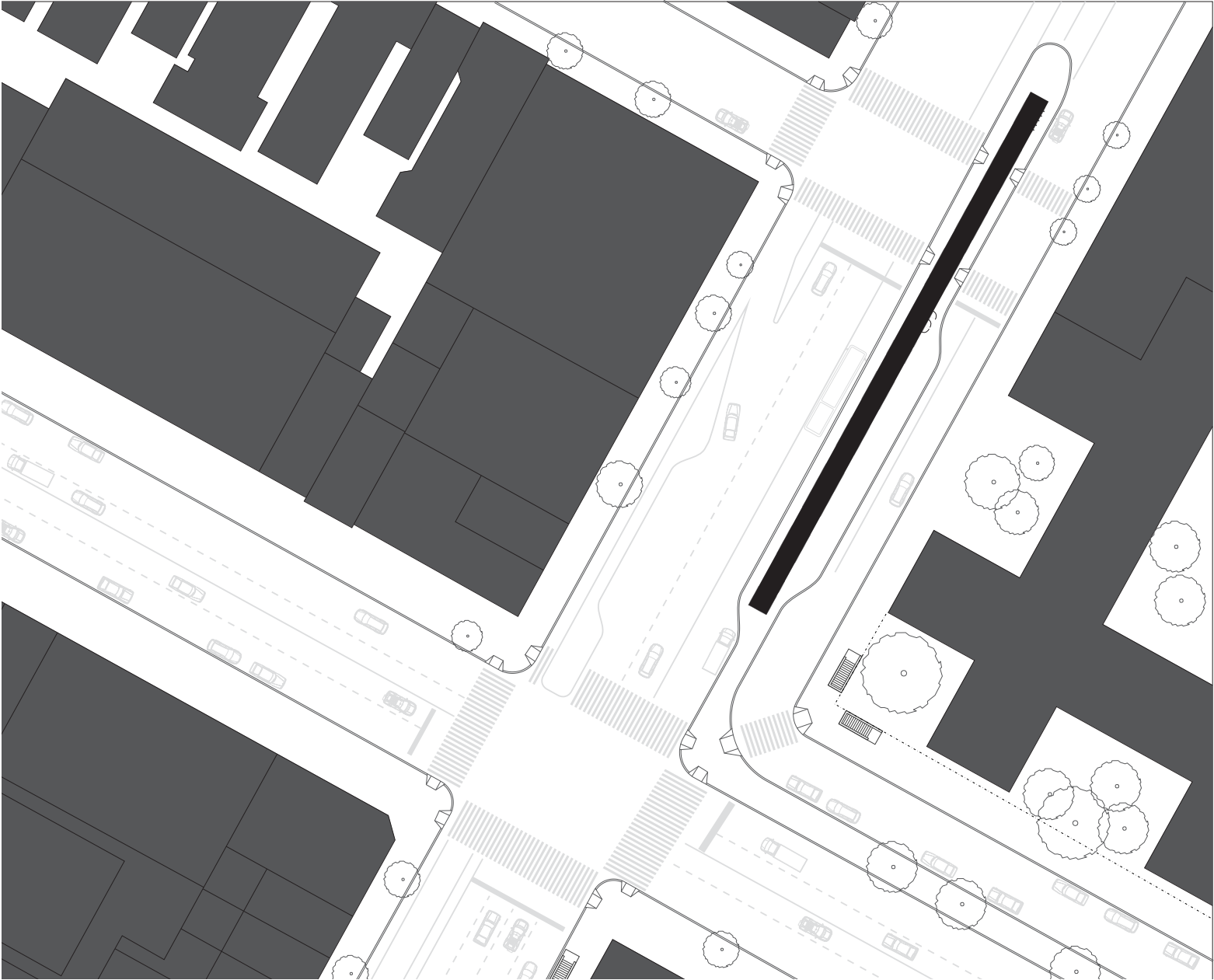






Model Photographs
(opposite)



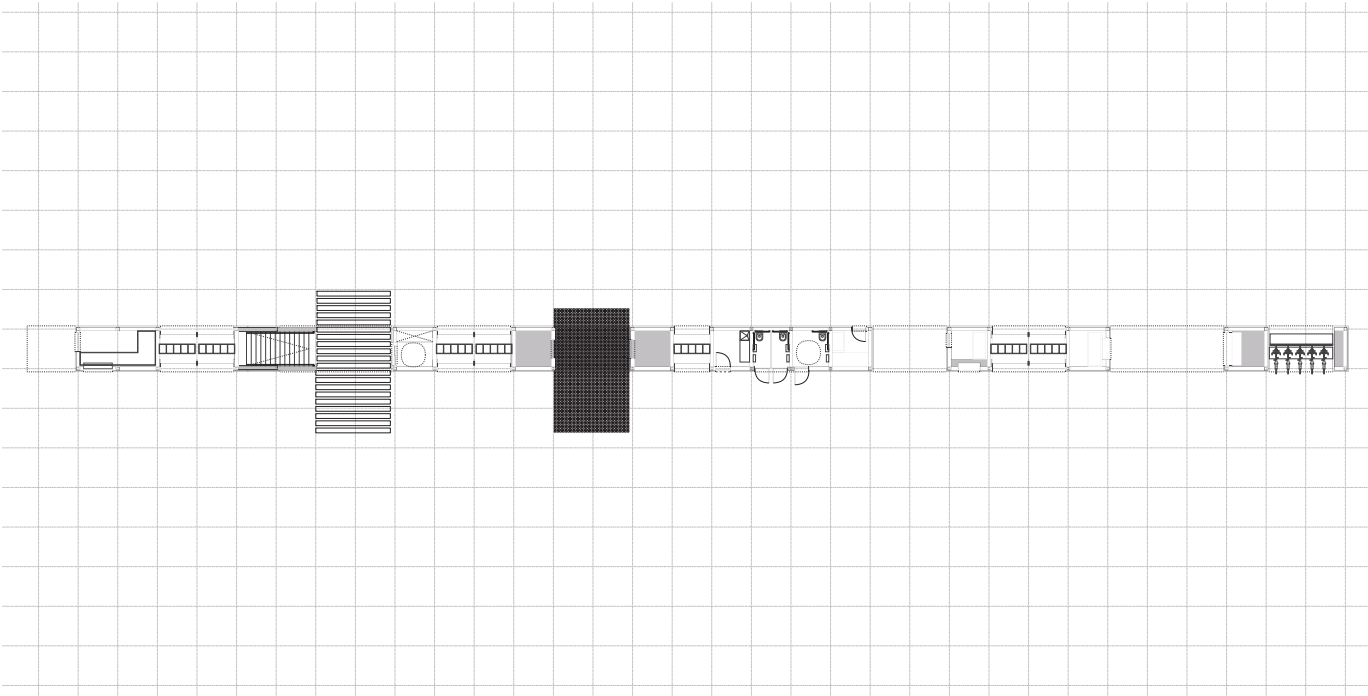


Stuyvesant Town

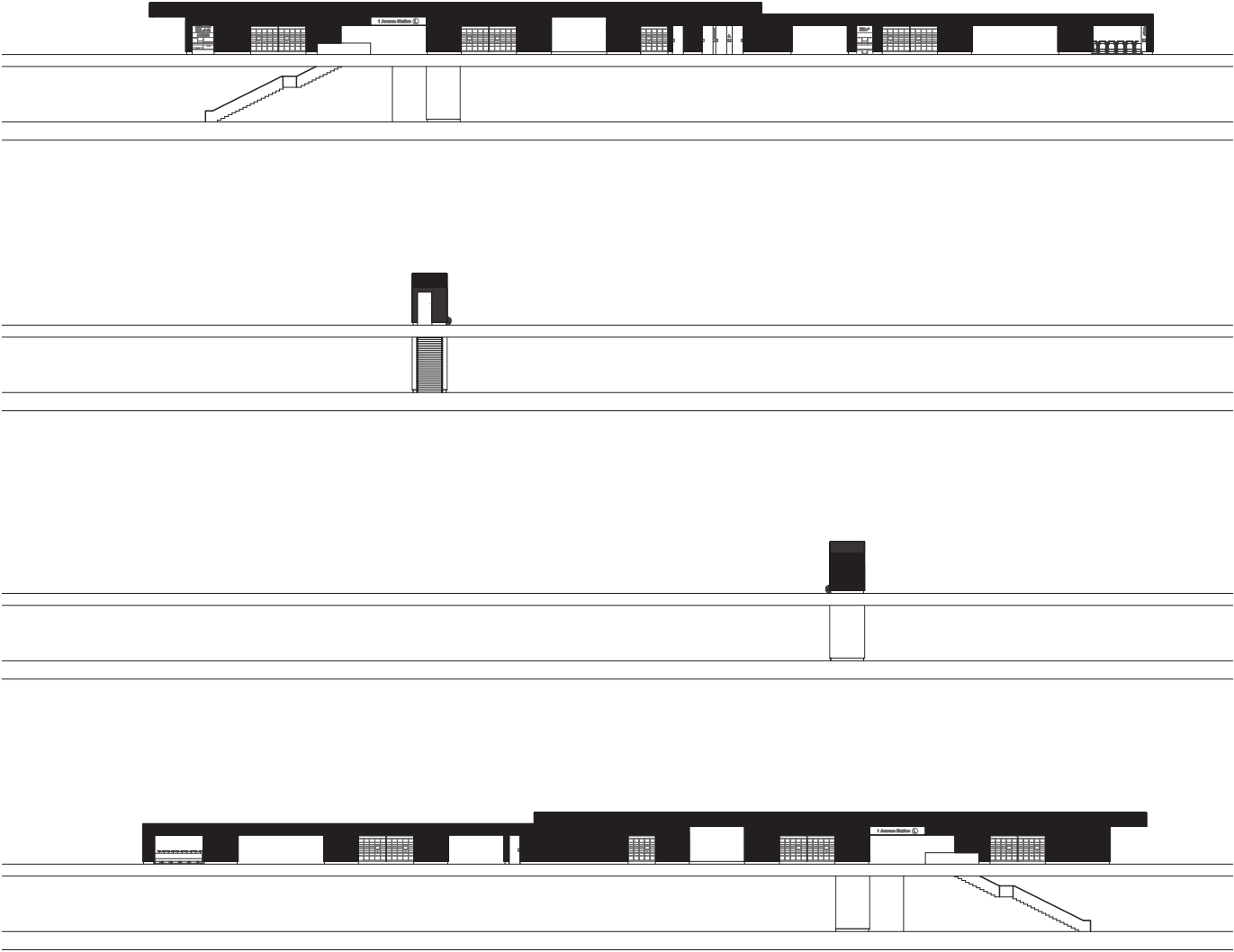
14th Street & First Avenue

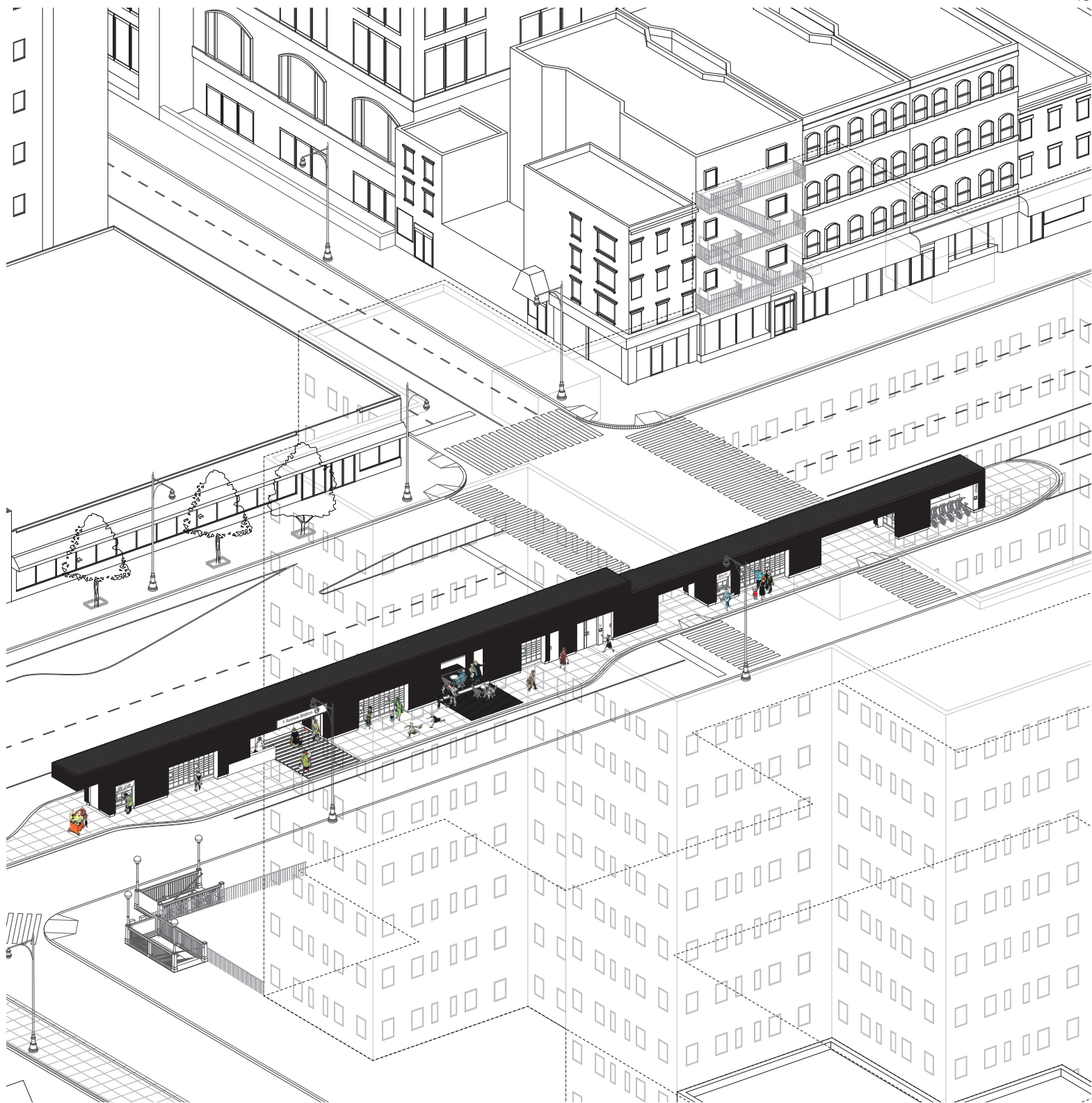
First Avenue Station

Module Count: 17

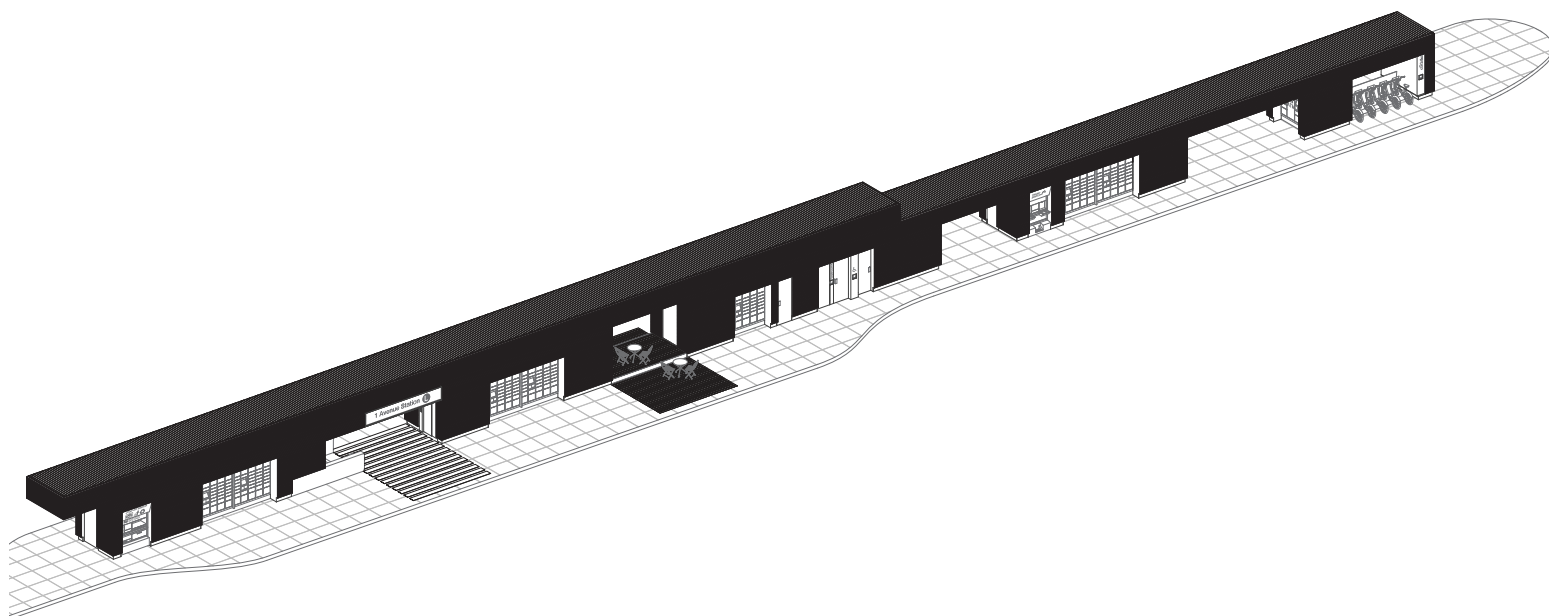


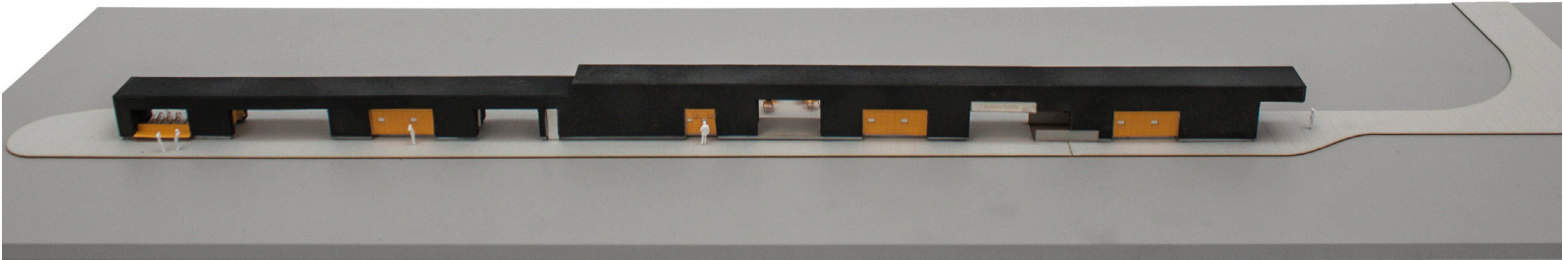
Elevations











Model Photographs
(opposite)



Prototype

